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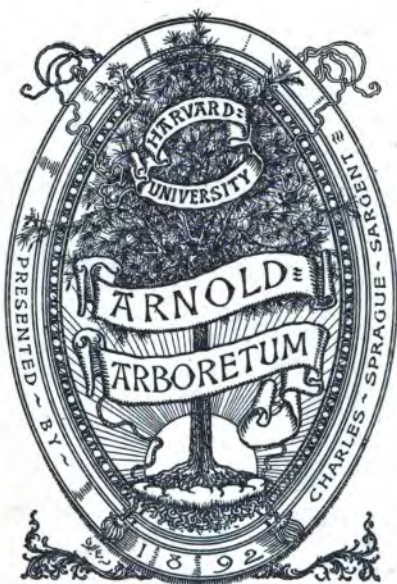
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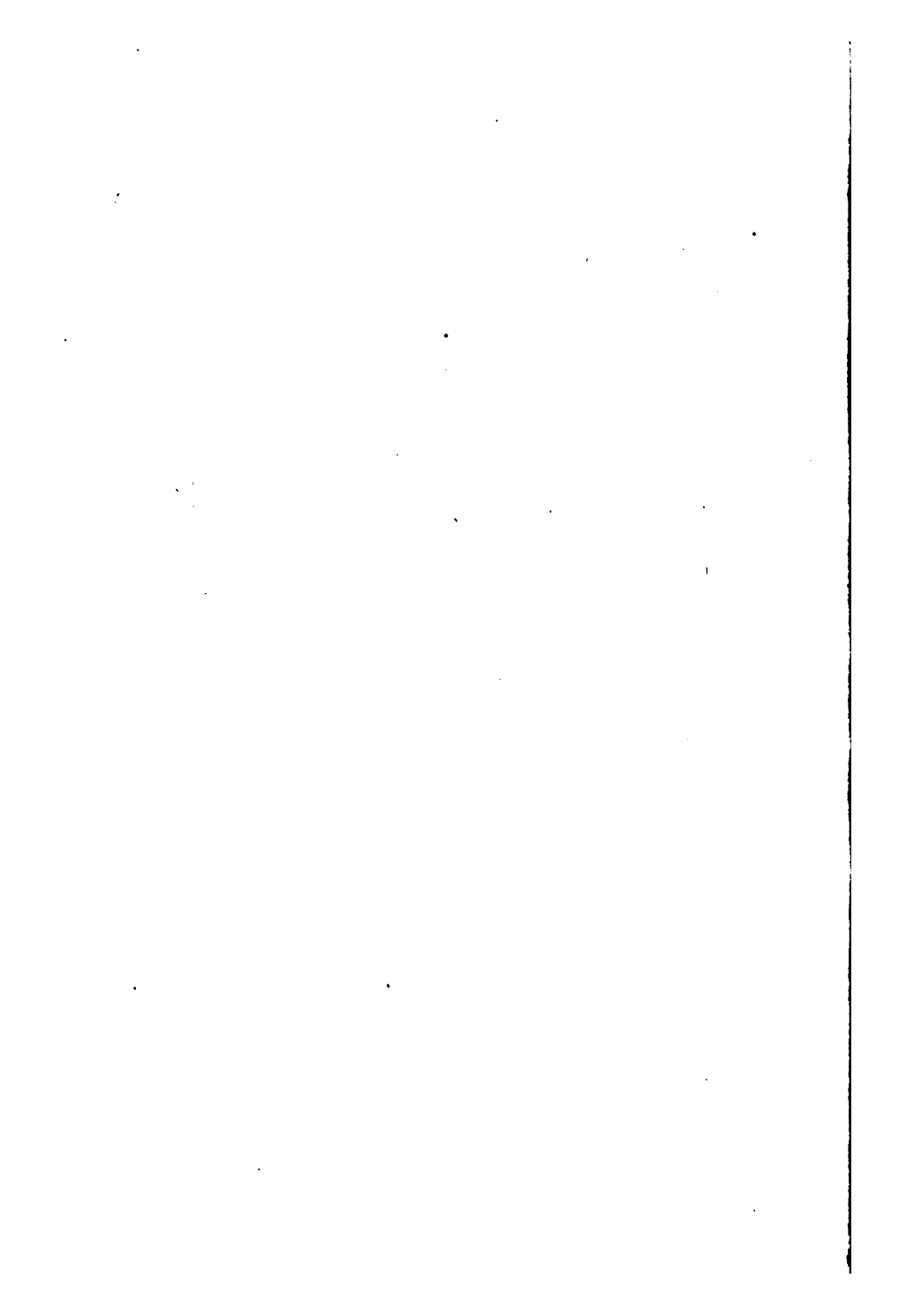
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FERNS AND

FLOWERING PLANTS



ATLANTIC SECTION
WHOLE PLENUM

PAELLA 1962

#

ANALYTICAL KEY

TO THE

F ERNS AND F LOWERING P LANTS

IN THE

ATLANTIC SECTION OF MIDDLE FLORIDA.

(WILD AND CULTIVATED.)

BY

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1906.

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PREFACE.

The Key is intended as an aid to beginners in field-work, who use as books of reference:

Dr. J. K. Small's *Flora of the Southeastern United States* (published by the author, Bedford Park, New York City; 1 vol. pp. 1882—\$8.60).

Dr. A. W. Chapman's *Flora of the Southern United States* (published by the American Book Company; 1 vol. pp. 695—\$4.00).

For cultivated plants may be consulted:

Dr. Bailey's *Cyclopedia of American Horticulture* (published by the MacMillan Co.; 4 vols.—\$20.00).

Nearly all the plants named in the Key have been found in Volusia, though students in adjoining counties will find the Tables of use to a great extent.

Names of additional plants found in the section covered by the Key are solicited.

J. F. B.

SEPTEMBER, 1906.

And Nature, the old nurse, took
 The child upon her knee
 Saying: "Here is a story-book
 Thy Father has written for thee.
 Come, wander with me," she said,
 "Into regions yet untrod
 And read what is still unread
 In the manuscripts of God."
 And he wandered away and away
 With Nature, the dear old nurse,
 Who sang to him night and day
 The rhymes of the universe.
 And whenever the way seemed long
 Or his heart began to fail,
 She would sing a more wonderful song.
 Or tell a more marvellous tale.
 . . .
 —Longfellow to Louis Agassiz.

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KEY TO THE FAMILIES.*

Plants with woody and vascular tissues, producing spores—

Subkingdom of Pteridophyta

Plants producing seeds, - - - Subkingdom of Spermatophyta

Pteridophyta.

- | | |
|--|-------------------|
| 1. Leaves broad, entire or dissected, - - - - - | 2 |
| 1. Leaves scale-like or awl-like, - - - - - | 4 |
| 2. Vernation, straight or inclined, - - - - - | 1 Ophioglossaceae |
| 2. Vernation, coiled, - - - - - | 3 |
| 3. Sporangies round or nearly so, in panicles or spikes. - - - - - | 2 Osmundaceae |
| 3. Sporangies on the back or margin of the leaf-blades, terrestrial or epiphytic plants, - - - - - | 3 Polypodiaceae |
| 4. Leaves scale-like, plants terrestrial, - - - - - | 5 |
| 4. Leaves awl-like, plants aquatic, - - - - - | 7 Isoetes |
| 5. Spores all alike, - - - - - | 6 |
| 5. Spores of two sizes, - - - - - | 6 Selaginellaceae |
| 6. Stems leafy, - - - - - | 4 Lycopodiaceae |
| 6. Stems and branches almost naked, - - - - - | 5 Psilotaceae |

Spermatophyta.

Ovules not contained in an ovary, - - - Class of Gymnospermae

Ovules contained in an ovary, - - - Class of Angiospermae

GYMNOSPERMAE.

- | | |
|--|-----------------|
| 1. Plants growing by a single terminal bud; low, palm-like, - - - | 8 Cycadaceae |
| 1. Plants growing by terminal and lateral buds; shrubs or trees with scale-like or needle-like leaves, - - - | 2 |
| 2. Carpellary scales with bracts, not peltate, - - - | 9 Pinaceae |
| 2. Carpellary scales without bracts, peltate or fleshy, - - - | 10 Juniperaceae |

ANGIOSPERMAE.

Leaves generally parallel-veined, flowers usually 3 or 6 parted—

Subclass of Monocotyledones, page 6.

Leaves generally pinnately or palmately veined, flowers rarely 3 or 6 parted—

Subclass of Dicotyledones, page 7.

* The numbers before the names of the Families indicate the order in which they are described and analyzed in the Key to the Genera and Species.

Monocotyledones.

1. Perianth consisting of bristles or scales, or wanting, not corolla-like, - 2
1. Perianth of one or two rows, the inner usually corolla-like, - 7
2. Flowers glumaceous, - 17 Grasses and 18 Sedges
2. Flowers not glumaceous, - 3
3. Perianth consisting of bristles or scales, - 4
3. Perianth fleshy or herbaceous, or wanting, - 5
4. Flowers in elongated terminal spikes, - 11 Typhaceae
4. Flowers in globose axillary spikes, - 12 Sparganiaceae
4. Flowers in lateral panicles, corymbs or heads, rarely single, - 29 Juncaceae
5. Fruit a berry or utricle, - 6
5. Fruit a spike of drupelets; submerged herbs, - 13 Zannichelliaceae
6. Plants with flowers on a spadix, - 20 Araceae
6. Minute floating herbaceous structures, - 21 Lemnaceae
7. Trees or shrubs, with caudex, - 8
7. Herbs or vines, - 9
8. Leaves alternate, narrow, firm or rigid, - 32 Dracaenaceae
8. Leaves at the end of the stem, fan-shaped or pinnate, - 19 Arecaceae
9. Flowers in dense heads or spikes, on scapes, - 10
9. Flowers in compound inflorescences, not on scapes, - 11
10. Flowers yellow, in terminal dense spikes, - 23 Xyridaceae
10. Flowers white, minute, in terminal involucrate heads, - 24 Ericaulonaceae
10. Flowers pink or purple, in bracted clusters arranged in a drooping terminal spike, - 39 Musaceae
11. Ovary superior, - 12
11. Ovary wholly or partially inferior, - 20
12. The two rows of the perianth of different color, - 13
12. The two rows of the perianth of the same color, - 16
13. Carpels 3-many, distinct, - 14 Alliaceae
13. Carpels 3, more or less united, - 14
14. Leaves densely crowded, moss-like marsh herbs, - 22 Mayaceae
14. Leaves alternate, - 15
15. Stigma 1, obscurely lobed, - 25 Commelinaceae
15. Stigmas 3; epiphytes, except *Pine-apple*, - 27 Bromeliaceae
16. Leaves net-veined; vines, - 33 Smilacaceae
16. Leaves parallel-veined, often narrow, - 17
17. Styles united, - 18
17. Styles 3, distinct, - 28 Melanthaceae
18. Flowers regular, stamens 6; bulbplants, - 19
18. Flowers more or less irregular, stamens 3 or 6, rarely 1-4, - 26 Pontederiaceae
19. Flowers in umbels, with a scarious involucre, - 30 Alliaceae
19. Flowers solitary, or in racemes or panicles, without involucre, 31 Liliaceae
20. Stamens and pistils united, flowers irregular, - 41 Orchidaceae
20. Stamens and pistils separate, - 21
21. Flowers monocious or dioecious, - 22
21. Flowers perfect, - 24
22. Flowers arising from spathes; aquatics, - 23
22. Flowers without spathes; twining vines, - 25 Tamaceae
23. Ovary 1-celled, stigmas usually 3, - 15 Elodeaceae
23. Ovary 6-9 celled, stigmas 6-9, each 2-parted, - 16 Hydrocharitaceae
24. Perianth pubescent, - 37 Haemodoraceae
24. Perianth glabrous, - 25

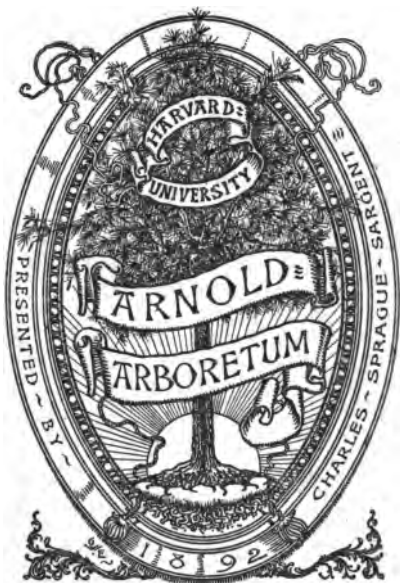
25. Stamens petal-like, one anther marginal, - - - 35 Cannaceae
 25. Stamens not petal-like, - - - 26
 26. Stamens 3, - - - 27
 26. Stamens 6, - - - 34 Leucojaceae
 27. Anthers extrorse, opening lengthwise, - - - 36 Ixiaceae
 27. Anthers introrse, opening crosswise, - - - 40 Burmanniaceae

Dicotyledones.

1. Corolla wanting (*Apetalae*) - - - 2
 1. Corolla present, petals distinct (*Polypetalae*) - - - 37
 1. Corolla present, petals more or less united (*Gamopetalae*), - - - 81
 2. Calyx wanting, at least in the staminate flowers, - - - 3
 2. Calyx present, sometimes colored, at least in the staminate and in the perfect flowers, - - - 9
 3. Herbs, - - - 4
 3. Shrubs and trees, flowers rarely perfect, - - - 6
 4. Flowers perfect, - - - 5
 4. Flowers monocious or diceious, - - - 92 Euphorbiaceae
 5. Stamens 3-8, carpels almost distinct, stigmas 3-4, - - - 42 Saururaceae
 5. Stamens rarely more than 2, carpels united, stigma brush-like, - - - 43 Piperaceae
 6. Flowers in aments, - - - 7
 6. Flowers not in aments, - - - 8
 7. Ovules solitary, fruit a drupe-like nut, - - - 45 Myricaceae
 7. Ovules numerous, fruit a capsule, seeds with coma, - - - 46 Salicaceae
 8. Flowers in heads, fruit consisting of capsules united into a globose head, - - - 77 Altingiaceae
 8. Flowers not in heads, fruit a samara or a drupe, - - - 129 Oleaceae
 9. At least the staminate flowers in aments, or ament-like spikes or heads, - - - 10
 9. At least the staminate flowers not in aments, - - - 12
 10. Leaves single, - - - 11
 10. Leaves pinnately compound; fruit a nut surrounded by a hard or fibrous husk, - - - 44 Juglandaceae
 11. Fruit a cone-like aggregate of bracts, each subtending a nut, 47 Betulaceae
 11. Fruit a nut, surrounded by a scaly or spiny involucre, - - - 48 Fagaceae
 11. Fruit a syncarp or syconium, - - - 49 Artocarpaceae
 12. Ovary superior or partly inferior, - - - 13
 12. Ovary inferior, - - - 38
 13. Style and stigma 1, - - - 14
 13. Styles or stigmas 2-several, - - - 17
 14. Leaves pinnately-parted; shrubs or trees, - - - 111 Proteaceae
 14. Leaves entire or lobed, - - - 15
 15. Herbs or shrubs; flowers often bracted; fruit an achene, - - - 56 Allionaceae
 15. Shrubs or trees; flowers without bracts; fruit a drupe, - - - 16
 16. Anthers opening by slits, - - - 112 Daphnaceae
 16. Anthers opening by valves, - - - 113 Lauraceae
 17. Ovary 1-celled and 1-ovuled, - - - 18
 17. Ovary with two-several cells or placentae, more than 1 ovuled, - - - 27
 18. Leaves with sheathing stipules, or if without stipules fruit a 3-angled achene, - - - 51 Polygonaceae

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FERNS AND
FLOWERING PLANTS



ATLANTIC COAST
MIDDLE FLORIDA

GALEEN

KEY TO THE GENERA AND SPECIES.

Pteridophyta (Ferns and Fern Allies).

1. Ophioglossaceae, *Adder's Tongue Family*.

Succulent plants from a fleshy rootstock, stem with one leaf, sporophyl a spike or a panicle, sporanges naked, spores of one kind, yellow.

1. Leaf with reticulate veins, sporanges in 1-several simple spikes, - 2
1. Leaf with free veins, sporanges in panicked spikes, - *Botrychium*, *Moonwort*
 - B. obliquum (*B. ternatum*). Stalked leaf near the base of the stem, ternate or 2-pinnate; sporophyl long-stalked, 2-4 pinnate. Low shady woods.
 - B. tenuifolium. Leafstalk very slender, blade bi-ternate; sporophyl a slender stalked panicle. Low grounds.
 - B. Virginianum, *Rattlesnake Fern*. Slender fleshy stem, with ternate leaf sessile above its middle; sporophyl long stalked and recurved. Woods.
2. Leaf simple and entire; sporophyl terminal bearing two rows of large cohering sporanges; terrestrial plants, - *Ophioglossum*, *Adder's Tongue*
 - O. vulgatum. Stem slender and tall with the obtuse leaf sessile near its middle. Low grounds.
 - O. pusillum (nudicaule). Stem short with the ovate leaf near its base, the blade narrowed into a short petiole. Sandy soil.
 - O. crotalophoroides. Stem fairly tall with the broadly ovate, slightly petioled leaf near the base of the stem. Sandy soil.
2. Leaf palmately lobed; sporophyls several near the base of the leaf; epiphytic plants on palmettos, - - - *Cheiroglossa*
 - C. palmata. Leaf 1-9 lobed, spikes 1-16. Hammocks.

2. Osmundaceae, *Flowering Fern Family*.

Large plants with stout rootstocks; leaves coiled in veneration, veins free, running to the margins; large

globular sporanges on modified contracted leaflets, or in sori on their lower surfaces.

The spore-bearing fronds much contracted with the sporanges on the margins of the divisions, veins forked, spores green, - - - *Osmunda*

O. spectabilis, *Royal Fern*. Leaves clustered from one rootstock, tall, with 2-pinnate leaves that are fertile at the top; sporophylls panicle, at first greenish but later dark-brown. Swampy places.

O. cinnamomea, *Cinnamon Fern*. Cluster of erect sterile leaves with few fertile ones from the creeping rootstock; petioles tomentose when young; leaflets pinnatifid; sporophyll 2-pinnate; sporanges cinnamon-colored; the fertile leaves wither before the sterile ones expand. Low wet places.

8. Polypodiaceae, Fern Family.

Leaves coiled in vernation; sporanges in sori on the back or along the margin of the blades, and provided with an annulus.

1. Sori without indusia, - - - - - 2

1. Sori with indusia, - - - - - 6

2. Sori in masses covering the under surface of the upper part of the leaf-blades, - - - *Acrostichum*

A. aureum. Tall swamp-plants with erect massed rootstocks and tufted leaves, 1-2 m. long; petioles erect, angular grooved, blades leathery, glossy, 3-4 dm. wide; leaflets about 12 pairs, rather distant, the lower ones short-stalked; veins finely reticulated without free veinlets, oblique to the margin. Green Springs, near Enterprise, and South.

2. Sori roundish, - - - - - 3

2. Sori linear, more than twice as long as broad, - - - *Vittaria*

V. lineata, *Grass Fern*. Leaves grass-like; sori in a continuous groove near the margin of the blade; veins obscure. On palmetto.

3. Petioles jointed to the rootstock, - - - - - 4

3. Petioles continuous with the rootstock, - - - - - 5

4. Veins free, - - - - - *Polypodium*

P. polypodioides (*Incarnum*), *Resurrection Fern*. Leaves coriaceous, pinnately parted, small; petioles and back of blades with peltate scales; veins obscure. An evergreen on rocks and trunks of trees, especially oaks.

4. Veins anastomosing, forming areolae which include free veinlets, at the end of which the sori appear, - - - *Phlebodium*

P. (Polypodium) aureum. Petioles chestnut-colored, blades ample, cut nearly to the rachis; segments entire, undulate. On palmetto and cultivated in pots.

5. Veins free, - - - - - *Phlegopteris*

P. hexagonoptera, *Beach Fern*. Leaves few; petioles straw-colored; blades triangular, ternate or 2-3 pinnatifid; sori near the margin. A low fern in dry woods.

5. Veins connivent, forming arches, - - - *Gealeopteris*

G. reptans. Petioles slender; blades thin, pubescent, pinnate, often elongated and rooting, leaflets pinnatifid. On limestone.

G. tetragona. Petioles stouter; blades longer, deeply pinnatifid, pubescent beneath, with numerous spreading leaflets, the terminal ones large, the lowest narrowed at the base or stalked. Rocky woods.

6. Indusia formed by the margin of the leaf-blade, - - - 7
6. Indusia specially developed, sori dorsal, - - - 9
7. Sporangies in intramarginal lines which connect the ends of the veins, - 8
7. Sporangies in reflexed portions of the leaf-blades at the ends of the veins, - - - Adiantum
- A. Capillus-Veneris, *Venus-hair*. Petioles slender and shining; leaves ovate-lanceolate, 1-2 pinnate. Hanging from limestone cliffs.
- A. tenerum, *Maiden-hair*. Petioles slender and shining; leaves deltoid; 3-4 pinnate. In lime-sinks.
- Several species of Adiantum are cultivated as A. cuneatum, A. hispidulum, A. hybridum, etc.
8. Indusium single, - - - Pteris
- P. Cretica. Leaves ternate or pinnate, smooth, ovate. Shady woods.
8. Indusium double, - - - Pteridium
- P. aquilinum (Pteris aquilina), *Bracken* or *Brake*. Blades large, ternate, the three divisions each bi-pinnate, the terminate pinnules often elongated. In sunny places.
- A cultivated variety of Pteris is the beautifully striped albolineata; other species of the greenhouse are P. serrulata, P. tremula, etc.
9. Sori linear, more than twice as long as broad, - - - 10
9. Sori roundish, - - - 13
10. Sori parallel to the midrib, - - - 11
10. Sori oblique to the midrib, - - - Asplenium, *Spicewort*
- a. Blades pinnate, sori straight, - - - b
- a. Blades 2-pinnate, sori curved, A. Filix femina, *Lady-fern*. In low shady woods.
- b. Rachis brown or black, leaflets auricled, - - - c
- b. Rachis green, leaflets crenate. - - - A. dentatum. In sandy soil
- c. Leaflets mostly opposite, - A. resiliens (parvulum). On limestone
- c. Leaflets mostly alternate, A. platyneuron (ebeneum). On shady rocks
10. Sori partly parallel, partly oblique; veins reticulate, - - - Camptosorus
- C. rhizophyllus, *Walking Fern*. Much cultivated; leaf-blades with long-acuminate apex and cordate or hastate base, tip rooting; sori numerous. On limestone rock, not South of Georgia.
11. Veins free, sori more or less continuous, - - - Blechnum
- B. serrulatum (angustifolium). Petioles rigid; leaves long and leathery, with 12-24 pairs of leaflets, the fertile leaves narrower than the sterile ones. Coarse swamp-ferns.
11. Veins reticulate, sori interrupted, - - - 12
12. Leaves of the same kind, - - - Anchistea
- A. (Woodwardia) Virginica. Petioles stout, darker below; blades pinnate, leathery; veins reticulate along the midrib, free toward the margin. In swamps and shallow ponds.
12. Leaves of two kinds, - - - Loricaria
- L. areolata (Woodwardia angustifolia). Fertile blades on longer petioles than the sterile ones; the segments of the latter making a broader wing along the rachis than those of the former. In swamps and low grounds.
13. Sori on the back of the veins, - - - 14
13. Sori at the ends of free veins, - - - Nephrolepis
- Nephrolepis with long pendent or spreading blades and numerous leaflets is an epiphytic genus from South Florida, but has several cultivated species, as N. Davallioides furcata (*Boston Stag-horn*), N. exaltata (*Sword-*

fern), with the varieties *Bostonensis* (*Boston Fern*), and *cristata* (*Crested Boston Fern*), *N. rufescens triplinatifida* (*Ostrich Feather*), etc. The true *Staghorn-ferns* belong to the genus *Platyserium*.

14. Indusium orbicular and peltate, fixed by the center; veins free, *Polystichum P.* (*Aspidium*) *acrostichoides*, *Christmas Fern*. Petioles very chaffy; blades pinnate, leaflets with spiny teeth; sori copious. In rocky woods. The *P. capense* is a cultivated species.
14. Indusium cordate-reniform, fixed at the sinus, - *Dryopteris*, *Shield Fern*
 - D. (*Aspidium*) *Thelypteris*. Rootstock slender; blades thin, scarcely narrowed at the base, leaflets deeply pinnatifid, margin of fertile segments strongly revolute, veins forked; sori crowded. In swamps.
 - D. (*Aspidium*) *patens*. Rootstock stout; blades long, thin, pubescent beneath, leaflets deeply pinnatifid, veins simple; sori near the margin, indusia small, pubescent. In shady woods.
 - D. (*Aspidium*) *Floridana*. Rootstock thick, scaly; blades firm, veins forked; upper leaflets fertile, deeply cut into oblong segments; lower leaflets sterile, broader, less deeply cut; indusia large, thin. On low grounds—Cultivated species are *Aspidium, taussimense*, *A. thelypteris*, etc.

4. Lycopodiaceae, Club-moss Family.

Moss-like plants with mostly creeping stems and narrow leaves in 2-several rows; sporanges in the axils of the bracts forming compact cones.

- Leaves in 4 or more rows; spores sulphur-yellow; in our species the cones terminal. In sandy bogs or on low pine-land, - *Lycopodium*, *Club-moss*
1. Sporangies globular, leaves and bracts alike, - - - 2
 1. Sporangies compressed, leaves and bracts unlike, - - - 4
 2. Bracts slightly toothed at the base, - - - *L. Chapmani*
 2. Bracts twice as long and much toothed at the base, - - - 3
 3. Stems arching, leaves in many rows, spreading, hairy; bracts not hairy, - - - *L. alopecuroides*
 3. Stems prostrate, leaves in one plane, - - - *L. pinnatum*
 4. Stems arching, leaves in 5 or more rows, cones numerous, nodding, *L. cernuum*
 4. Stems prostrate, leaves nearly in one plane, - - - *L. Carolinianum*

5. Psilotaceae, *Psilotum* Family.

Slender plants with sporanges sessile in the axils of the leaves.

Psilotum nudum (*triquetrum*). Stems forking; triangular; leaves mere scales, alternate; sporanges spiked. In hammocks, sometimes epiphytic.

6. Selaginellaceae, *Selaginella* Family.

Moss-like plants with much branched stems, scale-like leaves, and one-celled sporanges arranged in four-angled, axillary spikes or cones.

1. Stem-leaves of two kinds in two planes, - - - 2
1. Stem-leaves of the same kind, several-ranked, - - - 3
2. Stems flaccid, creeping, pale green, - - - *S. apus*. Low shady woods

2. Stems rigid, ascending, dark green, - S. *Ladoviciana*. Shady ground
 2. Stems creeping, rooting throughout, - S. *raupetris*. Pine barrens
 2. Stems ascending or erect, slender, - S. *arenicola*. Sandy fields

Several species are cultivated as: S. *Braunii*, S. *cuspidata*, S. *uncinata*, or *Rainbow-moss*, etc.; *Selaginella lepidophylla*, *Bird's-nest moss*, with bright green stems crowded in rosettes, curling closely into a dull brown ball when dry, belongs to the so-called "Resurrection-plants."

7. Isoetaceae, Quillwort Family.

Aquatic plants with a cluster of awlshaped leaves from a short fleshy stem; "sporangies are sessile in the excavated bases of the leaves, the sides more or less covered with a fold of the inner side of the blades (VELUM)"; those of the outer leaves contain megaspores, those of the inner contain microspores. The only species found in lakes and clear streams of middle Florida is:

Isoetes flaccida, with leaves of about half a meter long; complete velum, oval sporangies covered with flat tubercles and light-colored megaspores.

With the genus *Isoetes*, Chapman's Flora unites the genus *Asolla* to form the *Hydropterides* or *Water-fern Family*. Small's Flora has the *Asolla* in the *Salvinia Family*.

Asolla Caroliniana; minute, reddish or green (according to the amount of sunlight), moss-like, floating plants with pendent roots, pinnately branched stems covered with imbricated 2-lobed leaves; spores of two kinds. On still water.

Spermatophyta. Gymnospermae.

8. Cycadaceae, Cycas Family.

Shrubs or trees with clustered pinnate leaves and dioecious flowers without perianth; flowers in small oblong or cylindric cones, scales peltate spirally arranged; sterile flowers consisting of 1-celled anthers, the fertile ones of nearly sessile ovules; seeds nut-like; cotyledons 2.

Low palm-like plants; leaves circinate in the bud, petioles often spiny, blades pinnate, segments jointed to the rachis, - *Zamia*, *Coontie* or *Comptie*

Z. *Floridana*, with leaf-segments 10-16 veined. In the flatwoods.

Z. *pumila*, with leaf-segments 20-28 veined. In the hammocks.

The *Cycas revoluta* (so-called *Sage Palm*) and *Dioon edule* are cultivated species.

9. Pinaceae (Coniferae), Pine Family.

Evergreen monœcious trees with rigid needle-like leaves; fruit a cone, formed by the accrescent scales of the pistillate aments; seeds at the base of each scale, often samara-like; cotyledons 2-16.

Staminate aments at the ends of branches of the preceding year, anthers 2-

celled; pistillate aments on the young twigs, cones maturing the second year; seeds with elongated wings, - - - - - *Pinus, Pine*

- *1. Cones over 7 cm. long, - - - - - 2
1. Cones less long, - - - - - 4
2. Cones 16-25 cm.; leaves 3 in a sheath, 20-40 cm. long. In sandy soil. - *P. australis (palustris), Long-leaved or Yellow Pine*
2. Cones 8-14 cm. long, - - - - - 3
3. Cones flat or depressed at the base; leaves 2-3 in a sheath, 18-30 cm. long; resembles the preceding, but smaller. In low sandy soil. - *P. Elliotti, Slash Pine*
3. Cones rounded at the base; leaves 3, rarely 2-4, in a sheath, 15-23 cm. long; glaucous; bark very thick and furrowed. In sandy, mostly damp soil. - *P. Taeda, Loblolly or Old Field Pine*
4. Cones ovoid, mostly opposite; leaves 3 in a sheath, 15-25 cm. long, glaucous; trunk with flaky bark and many short branches near the base. Border of ponds and swamps. - *P. Serotina, Black or Pond Pine*
4. Cones narrowly conical when closed; leaves 4-12 cm. long, - - - - - 5
5. Cones readily opening, - - - - - 6
5. Cones tardily opening or remaining closed; leaves 2 in a sheath, 4-8 cm. long, very slender. On sandy ridges near the coast. - *P. clausa, Sand Pine*
6. Cones mainly less than 5 cm. long; leaves 2 in a sheath, 4-8 cm. long, very slender; trunk with relatively smooth bark and spreading branches near the ground. In the hammocks. - *P. glabra, Spruce Pine, Cedar Pine, White Pine, Walter's Pine*
6. Cones mainly over 5 cm. long; leaves 2-3 in a sheath, 8-12 cm. long, slender; trunk with furrowed and very rough bark without spreading branches near the ground. In sandy, rocky or clayey soil. - *P. echinata (mitis), Short-leaved Pine, Yellow Pine*

10. Juniperaceae, Juniper Family.

Shrubs or trees with scale-like or subulate leaves; flowers without perianth; aments mostly solitary; cotyledons 2-9.

1. Deciduous trees; leaves not scale-like; flowers monœcious; the sterile aments in a drooping panicle spike, the fertile aments subglobose, single or by pairs, sessile; cones globular, closed; seeds angled, wingless, - - - - - *Taxodium, Cypress*
- T. *distichum, Bald Cypress.* Very tall tree; bark relatively thin and smooth, leaves 2-ranked, linear, spreading; knees conical. In swamps, but thrives also in dry soil cultivated.
- F. *imbricarium, Pond Cypress.* Half as tall; bark thick and coarse, leaves appressed to the erect branchlets; knees short and rounded. In lakes and creeks, also in dry soil.
1. Evergreen shrubs and trees, - - - - - 2
2. Flowers monœcious, sterile aments terminal, solitary, nearly sessile between the leaves; fertile aments solitary, terminal on short

* See Glossary for measurements.

branchlets, oblong; cones oblong, drooping; seeds flat, broadly winged.

Thuja, Arbor Vitae

Thuja occidentalis and other species cultivated.

2. Flowers mostly dioecious; sterile aments very small, 3-6 together, terminal on the branchlets; fertile aments subglobose; cones berry-like, seeds wingless.

Sabina or *Juniperus*

S. (J.) *Virginiana, Red Cedar, Savin*. Small tree with reddish, odorous wood; cones small blue, covered with a bloom. Dry or wet soil.

Among the cultivated *Conifers* are the *Araucaria excelsa* in pots; for the open ground *Araucaria Bidwillii*, several species of *Cupressus* or *Cypress*, and some of the *Pines*, as: *Pinus excelsa* or *Botan Pine*, *P. Halepensis* or *Jerusalem Pine*, and *P. longifolia*, *Emodi*, or *Cheer Pine*.

Spermatophyta. Monocotyledones.

11. Typhaceae, Cat-tail Family.

Marsh-herbs with simple stems; leaves sheathing at the base, linear; flowers monœcious in dense spikes, the staminate spikes above the pistillate.

Typha latifolia. Stems tall, leaves long; spikes dark brown with the fertile and sterile portions contiguous. Margins of rivers and ponds. Summer.

T. angustifolia. Stems tall, leaves long; spikes light brown with the fertile part separate from the sterile part. Marshes near the coast. Summer.

12. Sparganiaceae, Bur-reed Family.

Aquatic herbs with erect or floating stems, leaves narrow, sheathing at the base; flowers monœcious in dense heads on the upper part of the stem and its branches, the staminate above the pistillate.

Sparganium angustifolium. Leaves linear, glabrous; pistillate heads sessile or peduncled, finally twice as large as the staminate, together forming an interrupted spike. In shallow water. Summer.

13. Zannichelliaceae, Pondweed Family.

Submerged herbs with alternate or clustered leaves on slender stems; flowers perfect or monœcious in axillary spikes arising from a bract-like spathe; perianth wanting.

1. Leaves alternate, flowers perfect, stamens 2, pistils 4.

Ruppia, Ditch-grass

R. maritima. Leaves almost filiform. In brackish water. Summer.

1. Floating leaves smaller and thicker than submerged leaves; flowers

perfect, stamens 4, pistils 4.

Potamogeton, Pondweed

P. Louchitii (floatans). Stems long, branched; submerged leaves large, lanceolate, pellucid; floating ones oblong, half as long as the submerged; stipules free from the leaves; peduncles short; spikes cylindric. In ponds and rivers. Summer.

- P. diversifolius (hybridus).** Stems very slender, branched; submerged leaves filiform, setaceous; floating ones elliptic, leathery; stipules adnate to the submerged leaves; peduncles short; spikes oblong. Shallow ponds. Summer.

14. Alismaceae, Water-Plantain Family.

Acaulescent marsh-herbs with sheathing leaves and mostly simple scapes, bearing the terminal racemes or panicles; calyx of 3 persistent sepals; corolla, white or pink, of 3 deciduous petals; stamens 6-many; ovaries 1-celled, each cell 1-ovuled; fruit a head of achenes.

1. Flowers perfect or polygamous; stamens 12-30; fruit a bristly head.

Spring and Summer,	Echinodorus
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E. parvulus. Flowers in terminal umbelled clusters, leaves linear. Shallow ponds.

E. radicans. Scapes creeping near the base, flowers in terminal panicles; leaves ovate, long-petioled. Ponds.

E. cordifolius (rostratus). Scapes erect, flowers in panicles; leaves lanceolate to ovate. Swamps.
1. Flowers monocious or dioecious in whorls of 3 near the top of the scape, the upper whorls staminate; stamens many, pistils many; fruit a globular head. Summer and Fall. - *Sagittaria, Arrowheads*

S. natans. Pedicels of fertile flowers thickened, reflexed at maturity; stamens 7 or 8; scapes simple; leaves elliptic, floating. Ponds.

S. graminea (simplex). Pedicels of fertile flowers slender; stamens 10-12, hairy; scapes slender; leaves linear. Ponds.

S. lancifolia (falcata). Pedicels of fertile flowers slender and shorter than those of sterile flowers; scapes tall, often branched; leaves elliptic, leathery. Lakes and marshes.

S. pubescens (variabilis). Pedicels of fertile flowers slender and half as long as those of sterile flowers; scapes sometimes pubescent; leaves mostly sagittate and often pubescent; whorls of inflorescence remote. Marshes.

15. Elodeaceae, Tape-Grass Family.

Submerged herbs; perianth regular, 6 in two rows, the inner sometimes wanting; filaments of stamens distinct or monadelphous; ovary inferior, 1-celled.

1. Flowers dioecious; staminate numerous on a spadix enclosed in a spathe, stamens 1-3; pistillate flowers solitary subtended by a spathe, - - - - - *Vallisneria*
- V. spiralis, Eel-grass.** Acaulescent; leaves lint-shaped, basal; flowers inconspicuous, the fertile ones borne on a long slender scape, which after fertilization coils spirally and submerges the flower. In slow-flowing water. Summer and Fall.
1. Flowers dioecious or polygamous, from a spathe; stamens 9 in the sterile and 3-6 in the fertile flowers, - - - *Philotris (Elodea)*
- P. (E.) Canadensis, Water-hyme, Water-pert.** Caulscent; leaves elliptic, opposite or whorled; flowers axillary, dioecious; sterile flowers submerged,

"breaking off at maturity and floating on the surface they discharge the pollen near the fertile flowers"; the fertile flowers floating attached by slender stalks. In slow-flowing water. Spring to Fall.

16. Hydrocharitaceae, Frog's-bit Family.

Aquatic herbs, mostly in still water, with a white perianth of 3 or 6 parts.

Limnobiium Spongia. Floating herb with pendent roots and many stolons; broad, clustered, purplish leaves; monocious flowers from 2-bracted spathes, the sterile flowers on scapes with 6-12 stamens, monadelphous; fertile flowers on shorter and thicker scapes recurving at maturity, with a 6-9 celled ovary and some abortive stamens; fruit a berry.

17. Poaceae (Gramineae), Grass Family.

Stems mostly hollow, with 2-ranked leaves, the margins of their sheaths not united; fruit a caryopsis or grain.

18. Cyperaceae, Sedge Family.

Stems rarely hollow, with 3-ranked leaves, the margin of their sheaths united; fruit an achene.

A tall grass on the sand-dunes along the coast is *Umbel paniculata* or *Sea Oats*; the white-topped sedge often seen along the roadside is *Dichromena colorata* (leucocephala). Cultivated for ornament are *Arundo donax*, *Bambusa argentea* and other Bamboo-species; also *Gynierium argenteum* or *Silver Pampas Grass*, and *Cyperus alternifolius*, called *Umbrella-fern* but belonging to the sedges. Cultivated for use are *Sugar-cane*, *Saccharum officinarum*, and *Indian Corn*, *Zea Mays*, the latter with the following sub-species: *evecta* (*pop corn*), *tanicata* (*god corn*), *indurata* (*flint corn*), *saccharata* (*sweet or sugar corn*), etc. As lawn-grasses are used *St. Lucie* (*Gynodon dactylon*), *Bermuda* (*Capriola dactylon*), and *St. Augustine* (*Stenotaphrum glabrum*).

19. Arecaceae, Palm Family.

Shrubs or trees with an erect or horizontal caudex growing by a single terminal bud; leaves at the end of the stem; petioles imbricated at the base; blades plaited in the bud, fanshaped in our wild species; sepals 3, petals 3, stamens 6, carpels 3, united or distinct.

1. Petioles concave above, sharp-edged, - - - Sabal
S. glabra (Adansoni), *Dwarf Palmetto*. Low shrub with subterranean stem; leaves clustered, glaucous or pale green, blades longer than the petioles, drupes black, globose. Low ground. Summer.
- S. Palmetto*, *Cabbage Palmetto*. Tree; leaves several, spreading or drooping, deep green and lustrous; blades as long as the petioles; drupes black, subglobose. Low ground and cultivated. Summer.
2. Petioles armed on the edges with rigid spine-like teeth, - - - Serenoa
S. serrulata, *Saw Palmetto*. Shrub with creeping stem; leaves ascending or erect, light green; petioles longer than the blades; drupes black, ovoid. Spreading in sandy soil. Summer.

3. Petioles 3-angled, woolly beneath, the edges denticulate. - **Rhapidophyllum**
 B. (Chamaerops) *Hystrix*, *Blue Palm*, *Needle Palm*. Shrub with erect or
 creeping stem; sheaths of fibres interwoven in the stout spines; drupes
 red, ovoid. Shady pine-land. Early Summer.
 Several Palms are cultivated in tubs and in Winter indoors, or in open
 ground, especially species of the following genera:
 In open ground:
 With pinnate leaves; *Cocos* (*Alphonsii*, *Bonnetti*, *coronata*, *plumosa*), and
Phoenix or *Date-palms* (*Canariensis*, *pumila*, *reclinata*).
 With fan-shaped leaves: *Chamaerops* (*excelsa* and *humilis*).
 Indoors:
 With pinnate leaves: *Areca*, *Caryota*, *Chamedorea*, *Seaforthia*, *Cocos*
Weddelliana and *Phoenix rapicola*.
 With fan-shaped leaves: *Livistonia*, *Thrinax*.

20. Araceae, *Arum* Family.

Mostly acaulescent fleshy herbs with rootstocks; flowers on a thick spadix, the sterile above the fertile; spadix with a spathe; stamens 4-10, with short filaments; carpels 1-several, united; fruit a berry or utricle.

1. Flowers monœcious or diœcious, perianth wanting. - - - 2
1. Flowers perfect, perianth scale-like. - - - 4
2. Spadix free, with numerous fertile flowers, - - - 3
3. Spadix adnate to the spathe, one fertile flower, - - - Pistis
- P. *Stratiotis*, *Water-lettuce*. Free floating herbs with fibrous roots and clustered entire leaves; spathe white, axillary; staminate flowers surrounded by a cup-like involucre. In dead branches of the St. Johns river.
3. Leaves palmately divided, spadix included, - - - **Arisaema**
 A. *triphyllum*, *Indian Turnip*, *Jack-in-the-pulpit*. One or two leaves with 3 segments, scape shorter than the petioles; spathe white below, striped with brown or purple above; spadix stout; fruit bright red.—A more slender species with the spathe green throughout is *A. acuminatum*.—Low rich soil. Spring.
3. Leaves pedately divided, spadix exserted, - - - **Muricanda**
 M. *Dracontium*, *Dragon-root*. Scape shorter than the solitary leaf; sterile portion of spadix slender and prolonged far beyond the spathe; fruit bright red. Moist ground in hammocks. Spring.
3. Leaves simple, spadix covered with the flowers, - - - **Peltandra**
 P. *Virginica*, *Arrow Arum*. Leaves sagittate or hastate; scape as long as the petioles; spathe green enveloping the spadix, flowers inconspicuous; fruit green.—A species with white spathe and crimson fruit is *P. alba*.—Marshes. Spring and early Summer.
4. Scape club-shaped with spadix at the top, - - - **Oreontium**
 O. *aquaticum*, *Golden Club*, *Bog-torch*. Swamp herbs with deeply buried rootstocks; leaves thick, entire; spathe at first enclosing the spadix, later only a sheath-like bract at its base; scape white, spadix golden yellow; fruit green. Ponds. Spring.
4. Scape leaf-like with the spadix more or less lateral, - - - **Acorus**
 A. *Calamus*, *Sweet-flag*. Swamp-herbs with aromatic horizontal rootstocks; leaves linear, sheathing; scape erect apparently extending into the sword

Like spathe; spadix yellowish, lateral, naked; flowers perfect, perianth 6; fruit gelatinous inside. In wet places. Spring.

To this Family belong the *Caladiums*, *Colecasias*, and *Alocasias*, cultivated for their beautiful leaves; also the *Richardias* or *Calla-lilies*, cultivated for their white or yellow spathe flowers.

21. Lemnaceae, Duckweed Family.

Minute disk-like plants, solitary or 2-5 in a colony, reproducing by lateral branching; two propagative pouches from which a spadix with 1 fertile and 2 sterile flowers arises; flowers consist of 1 pistil or 1 stamen; fruit a utricle.

Lemna minor and *L. perparilla* with solitary root, and *L. (Spirodela) polyrrhiza* with several roots. In ponds.

22. Mayacaceae, Mayaca Family.

Moss-like herbs with creeping stems and numerous pellucid, narrow leaves; flowers solitary, perfect, on axillary pedicels; sepals 3, narrow; petals 3, white or purple; stamens 3 at the base of the petals; style single with 3-lobed stigma; capsule 3-celled.

M. Aubletii (Michauxii). Stems tufted, pedicels longer than the leaves.—A species with pedicels shorter than the leaves is *M. fluvistilis*.—Ponds and around springs. Summer.

23. Xyridaceae, Yellow-eyed Grass Family.

Stemless herbs with equitant linear leaves and perfect flowers collected in a bracted spike; the scape, commonly twisted or spiral, with a spathe-like sheath at the base; sepals 3, the two lateral persistent, keeled and often winged, the third deciduous; petals 3, yellow (in one species white), fugacious; stamens 3, usually alternating with 3 bearded staminodia, hypogynous; style 1 with 3 stigmas; ovary 1-3 celled. In low pine-land or swamp.

XYRIS:

1. Annual or biennial; leaves shorter than the sheath of the scape; keel of the lateral sepals smooth or nearly so. Spring. - *X. brevifolia*
1. Perennial; leaves longer than the sheath. - - - 2
2. Lateral sepals included. - - - 3
2. Lateral sepals more or less exserted. - - - 5
3. Wing of lateral sepals ciliate, narrow. Summer and Fall. - *X. ambigua*
3. Wing or keel of lateral sepals indented. - - - 4
4. Lateral sepals keeled from below the middle to the base to the apex. Summer and Fall. - *X. neglecta*
4. Lateral sepals keeled from about the middle to the apex; bracts very broad and truncate at the apex. Summer and Fall. - *X. platylepis*

4. Lateral sepals keeled from above the middle to the apex; bracts of the ovoid or globular spikes loosely imbricated and deciduous.
Summer. - - - X. *Caroliniana*
5. Plants not bulbous at the base; leaf-bases not much dilated, - - - 6
5. Plants bulbous at the base, also the leaf-bases greatly dilated, - - - 7
6. Leaves numerous, narrowly linear. Summer. - - - X. *Elliotti*
6. Leaves few, linear; upper part of scape rough. Summer and Fall. X. *flabrista*
6. Leaves few, linear; upper part of scape smooth. Summer. - - - X. *Smalliana*
7. Corolla yellow, upper part of scape and the spike green. Spring. - - - X. *arenicola* (torta)
7. Corolla white, upper part of the scape and the spike more or less glaucous. Spring. - - - X. *pallenscens*

24. *Ericaulonaceae, Pipewort Family.*

Acaulescent marsh-herbs with the leaves clustered; scapes simple, subtended by sheathing bracts; the monocious white flowers bracted and densely crowded in a terminal involucre head; sepals, petals, stamens, styles and cells of ovary 2-3, or the stamens twice as many.

1. Stamens 2-3, - - - *Syngonanthus*
S. (*Paepalanthus*) *flavidulus*. Leaves linear, scapes 1-8 dm., 5-angled, very slender, pubescent, heads 5 mm. Low pine-land. Spring and Summer.
1. Stamens 4-6, - - - *Ericaulon, Pipewort*
E. *compressum* (gnaphalodes). Leaves shorter than the sheath at the base; scapes 2-10 dm., 10-12 ridged; heads over 10 mm. Marshland. Spring and Summer.
E. *decangulare*. Leaves longer than the sheath; scapes 3-10 dm., 10-14 ridged; heads over 10 mm. Marshland. Spring to Fall.
E. *Ravenelli*. Leaves longer than the sheath; scapes 1-3 dm., 5-6 ridged; heads 5 mm. Wet grounds. Summer and Winter.

25. *Commelinaceae, Spiderwort Family.*

Herbs with erect or creeping stems, alternate leaves with sheathing bases, perfect flowers solitary or in umbel-like cymes, calyx herbaceous, corolla showy, stamens 5-6 of which 2-3 may be sterile, carpels 2-3 united, ovary superior, styles united, stigma obscurely 2-3 lobed; fruit a capsule.

1. Petals alike; stamens 6, hairy, all normal, - - - 2
1. Petals unlike; stamens 3, smooth, and 2-3 staminedia, - - - *Commelina*
C. *Virginica*, *Day* or *Dew-flower*. Stems spreading or decumbent; sheath more or less hairy; involucre spathe-like, folded; flowers irregular, in cymes; sepals 3, partly united; petals 3, fugacious, two large, one smaller, Sandy pine-land. Summer and Fall.—In low swampy places is found:
C. *erecta*, with stout erect stems.
2. Cymes with very small bracts unlike the leaves, - - - *Cuthbertia*
C. (*Tradescantia*) *rosea*, *Spiderwort*. Stems erect, flowers in umbel-like

cymes of 8-10 at the ends of long peduncles and subtended by small bracts, sepals 3; petals 3, rose-colored, distinct. Sandy pine-land. Spring and Summer.

2. Cymes with 2-3 bracts similar to the leaves. - *Tradescantia*, *Spiderwort*
 - a. Sheaths not imbricated at the base of the stem; plants glaucous;—stem tall, often branched; leaves almost linear; bracts 2, unequal, reflexed; corolla blue. Sandy or clayey soil. Spring and Summer. - *T. reflexa*
 - a. Sheaths imbricated at the base of the stem, - - - - - *T. b*
 - b. Plants glandular, sheaths small, ciliate;—stem erect or assurgent; leaves linear, almost as long as the stem; bracts 2, small; corolla deep-blue. Sandy pine-land. Spring and Summer. - *T. longifolia*
 - b. Plants glabrous or glabrate, sheaths large, villous;—stem erect, very leafy near the base; leaves narrowly linear, about as long as the stem; bracts 3, unequal; corolla blue. Hammocks. Spring. - *T. foliosa*

Cultivated members of this family are:

Tradescantia viridis (fluminaensis), *Wandering Jew*. Stems trailing or the ends of the shoots ascending, glabrous, shining; leaves ovate, acute sessile, ciliate at the base, sheaths long; flowers white, hairy inside, borne in a sessile cluster, subtended by two unequal bracts; stamens 6, equal.

Tradescantia zebrina (*Zebrina pendula*), *Wandering Jew*. Stems trailing, rooting at the joints; leaves lance-ovate, sessile, with under surface red-purple, upper silver-white suffused with purple; flowers rose-red, contained in two boat-shaped unequal bracts; stamens 6, equal.

26. Pontederiaceae, Pickerel-weed Family.

Herbs with rootstocks and alternate or clustered leaves; flowers solitary or in spikes subtended by leaf-like spathe; the 6 parts of the colored perianth partially united; fruit a utricle or a capsule.

Pontederia cordata, *Pickerel-weed* or *Wampee*. Rootstocks horizontal; leaves ovate, often sagittate; spike with bract-like spathe; perianth blue or white, upper lobe with yellow dots; stamens 6, unequally inserted on the perianth; style filiform; ovary superior, 3-celled. Borders of ponds and river. Spring to Fall.

Piaropus (*Eleocharis*) *crassipes*, *Water-hyacinth*. Rootstocks floating with rootlets at the nodes; petioles inflated, leaves roundish; perianth bluish-purple, showy, upper lobe with a yellow spot; stamens inserted on the perianth, 3 included, 3 exserted. In St. Johns river and branches. Summer and Fall.

27. Bromeliaceae, Pine-apple Family.

Mostly epiphytes, pendent or rigid, with scurfy foliage; flowers solitary or in spikes, subtended by bracts.

Tillandsia (*Dendropogon*) *usneoides*, *Longmoss* or *Spanish Moss*. Stems string-like, branching, in festoons of 1-6 m. from the branches of trees; leaves filiform; flowers axillary, solitary; sepals 3, green; petals about twice as long, yellowish; stamens 6 or 3, style 1, stigma 3-lobed; fruit a capsule. Everywhere. Summer and Fall.

T. recurvata, *Air-plant*. Stems firm, not pendent, tufted, branched, leaves 2-ranked; flowers solitary or 2 together, terminal; petals violet-blue, stamens 6. In swamps. Summer.

T. tenuifolia (setacea, Bartramii), *Air-plant*. Stems firm, slender, tufted, simple; flowers blue, in terminal spikes; stamens 6. River hammocks. Summer.

The Billbergias, epiphytes, with stiff pine-apple-like leaves in a rosette, from which the spikes or spicate panicles arise, are cultivated in greenhouses.

The *Pine-apple*, fruit of the *Ananassa sativa*, cultivated under sheds, comes from a consolidated flower-spike.

28. Melanthaceae, Bunch-flower Family.

Caulescent or scapose herbs; flowers mostly in racemes or panicles, perianth inconspicuous, sepals and petals 3 each; stamens mostly 6, with the filaments adnate to the perianth; styles 3, distinct; ovary superior, 3-celled; fruit a capsule.

1. Stamens 6, - - - - - 2
1. Stamens 9-12, - - - - - *Pilea*
P. tenuifolia. Rigid, rush-like herb with narrowly linear leaves, mainly basal; raceme 3-9 flowered, interrupted; perianth linear, spreading. Swampy pine-land. Fall.
2. Flowers perfect, - - - - - 3
2. Flowers monœcious or polygamous, - - - - - 6
2. Flowers diœcious, - - - - - *Chamaelirium*
C. luteum, *Blazing-star*, *Devil's-bit*. Caulescent fleshy herbs with spatulate, broadly petioled leaves, mainly basal; racemes spike-like, staminate perianths white; sepals and petals narrowly linear. Open woods. Spring and Summer.
3. Flowers in racemes, - - - - - 4
3. Flowers in panicles, - - - - - 5
4. Ovules few in each cell; seeds 1-2 in each cavity, thick, reddish brown, - - - - - *Chrosperma*
C. (Amianthium) muscaetoxicum, *Fly-poison*. Caulescent herbs with numerous leaves, mainly basal, linear; racemes cylindric, continuous; perianth white, turning greenish; capsule 3-lobed. In sandy woods. Summer.
4. Ovules several in each cell; seeds few, narrow, - - - - - *Tracyanthus*
T. (Zygadenus) angustifolius, *Amianthium angustifolium*, *Crow-poison*. Caulescent herbs with alternate, linear, mainly basal leaves; racemes terminal; perianth white, turning purplish. Low ground. Spring.
5. Sepals and petals glandless, - - - - - *Triantha*
T. racemosa (*Toffeldia pubens*). Pubescent herbs, more or less viscid; leaves linear, mainly basal; panicles narrow, interrupted; perianth whitish; seeds appendaged at each end. Low ground. Summer.
5. Sepals and petals with 2 glands near the base, - - - - - *Zygadenus*
Z. glaberrimus. Caulescent herbs with glaucous, linear, alternate leaves; perianth white; seeds angled. Swampy ground. Summer.
6. Perianth brown; sepals and petals pubescent, glandless; seeds several in each cavity; flat, broadly winged, - - - - - *Veratrum*
V. intermedium, *False Hellebore*. Leaves narrow-elliptic with short sheath-

ing petioles; those on the stem lanceolate to linear. Hammocks. Summer.

6. Perianth white, sepals and petals glandless; seeds about 4 in each cavity, angled, - - - *Stenanthium*
S. gramineum (angustifolium). Caulescent, slender herbs with linear, mainly basal leaves; flowers polygamous, the upper ones in each branch of the panicle fertile. Open woods. Summer and Fall.
6. Perianth greenish-yellow, turning brown; sepals and petals with two glands at the base; seeds flat, winged, - - - *Melanthium*
M. Virginicum. Caulescent herbs with linear, pubescent leaves on the stem, mainly below the middle; flowers in a narrow panicle. In grassy, swampy places. Summer.

29. Juncaceae, *Rush Family*.

Grass-like herbs with a regular, 6-parted, chaffy perianth; stamens 3 or 6; ovary superior, style 1, stigmas 3; fruit a capsule. Many species.

30. Alliaceae, *Onion Family*.

Acaulescent herbs with bulbs; leaves basal, narrow; scapes simple; flowers perfect in terminal umbels, subtended by 1-3 membranous bracts; perianth 6-parted; stamens 6, adnate to the perianth; ovary superior, 3-celled; style jointed.

1. Wild plants, - - - - - 2
1. Cultivated, - - - - - 3
2. Ovules 2 in each cavity; plants odorous, - - - *Allium*
A. Canadense, *Meadow Garlic*. Umbels consist of bulblets and some pinkish flowers; pedicels few and slender; filaments about as long as the perianth. Riverbanks. Spring.
A. mutabile, *Wild Onion*. Flowers white to rose; pedicels numerous, slender; filaments shorter than the perianth. Dry soil. Spring.
2. Ovules several in each cavity; plants inodorous, - *Nothoscordium*
N. bivalve (*Allium striatum*), *False Garlic*. Flowers white; filaments shorter than the perianth. Sandy soil. Spring.
3. Scape stout, inflated near the base, much exceeding the hollow leaves; flowers in round umbels, whitish. Many varieties. *Allium Cepa*, *Onion*
3. Bulbs small, breaking up into many small bulbs (cloves); leaves very narrow, keeled; flowers purplish, usually replaced by bulblets.
Allium sativum, *Garlic*

31. Liliaceae, *Lily Family*.

Caulescent herbs with bulbs or corms; flowers solitary or in terminal racemes or panicles; sepals and petals similar, 3 each; stamens 6; ovary superior, 3-celled; style 1; fruit a capsule.

1. Anthers versatile, ovules numerous in each cell, - - - *Lilium*

- L. Catesbaei*, *Red Lily*. Leaves alternate, linear, fleshy, flowers solitary and erect, scarlet with yellow and purple spots. Low pine-land. Summer.
- L. Carolinianum*, *Turk's Cap*. Leaves in whorls or scattered, obovate; flowers 1-3, nodding, orange with purple spots. Swamps. Summer.
2. Anthers introrse, ovules 2 in each cavity. - *Oxytrix* (*Schenolirion*)
- O. (S.) crocea*. Leaves basal, narrow; flowers in racemes, bright yellow. Sandy soil. Spring.
- O. (S.) albiflora*. Leaves basal, narrow; flowers in panicles, white. Low pine-land. Spring.
- Cultivated flowers belonging to this family, besides some species of *Lily*, are:
- Tulips*, *Tulipa Geaneriiana*, in many varieties of red, yellow and white.
 - Squills*, *Scilla Peruviana* (*Qumassia* or *Camassia*), flowers violet-blue or white.
 - Hyacinths*, *Hyacinthus orientalis*, with racemes of purple, red, white, etc., flowers.
 - Chequered Lilies*, *Fritillaria imperialis* and *F. meleagris*, the former with a raceme of large drooping red flowers beneath a crown of bracts, the latter with large nodding flowers chequered with purple and yellow.

32. Dracaenaceae, *Yucca* Family.

Plants with woody caudex; leaves many, alternate, firm or rigid, narrow; flowers mainly white, in panicles, on scapes; sepals and petals nearly alike, 3 each; stamens 6; ovary superior, mostly 3-celled; styles united; stigmas 3, nearly sessile.

Flowers perfect, - - - - - *Yucca*

- Y. filamentosa*, *Bear Grass*. Caudex short; leaves firm with coarse and curly fibres on the margins; scapes 2-4 m. tall. In sandy soil. Early Summer.
- Y. gloriosa*, *Spanish Daggers*. Caudex tall, simple; leaves numerous, narrow, rigidly pointed; panicle showy, short-peduncled. In sand; cultivated. Early Summer.
- Y. aloefolia*, *Spanish Bayonet*. Caudex tall, branching; leaves numerous, broader than in the preceding species, spreading above and deflexed below; panicle showy, nearly sessile. Cultivated here, wild or escaped in the sand-dunes along the coast. Early summer.

A genus of ornamental plants, frequently with variegated leaves, is *Dracaena* (*Cordylina*); the leaves are sword-like or broad; the flowers clustered in panicles or heads; the perianth is greenish, white or yellow, salverform or campanulate, with spreading lobes; best known are *D. draco* or *Dragon-tree*, and *D. fragrans*, with green foliage, *D. Lindenii* with leaves creamy-striped on the sides, *C. australis* tall and fairly hardy, *C. Haageana* dwarf, and *C. terminalis* with bronzed green leaves marked with pink or carmine.

33. Smilacaceae, *Smilax* Family.

Vines with alternate leaves and dioecious flowers in axillary umbels; sepals and petals 3 each, mostly green; stamens 6; ovary 3-celled, sessile stigmas 3, ovules 1-2 in each cell; fruit a berry.

1. Stems herbaceous, unarmed; ovules 2 in each cell; leaves ovate or lanceolate, 3-5 veined, cordate at the base; flowers fetid; berries red. Dry soil. Summer.

Smilax (Nemexia) herbacea, Coprosmanthus herbaceus, Carrion-flower

1. Stems woody, mostly prickly; ovule solitary in each cell. - *Smilax*
- a. Glabrous, climbing. - - - - - b
- a. Pubescent, prostrate, trailing, often unarmed; leaves 3-5 veined, cordate at the base; berries red. Dry pine-land. Fall. - *S. pumila*
- b. Leaves abrupt or roundish or cordate at the base, 5-9 veined. - - - c
- b. Leaves acute at the base, 3-5 veined, and peduncles not longer than the petioles - - - - - c
- c. Berries black, - - - - - d
- c. Berries red; leaves 5-veined; stem high-climbing. Margin of swamps. Summer. - - - *S. lanceolata*
- d. Leaves often more or less strongly auricled, or dilated, strongly 3-ribbed; stems low-climbing; flowers fragrant. Dry sand or pine-land. Summer. - *S. Beyrichii (auriculata)*
- d. Leaves elliptic, 3-veined; stems high-climbing, prickly; berries white during the first year, later black. Moist thickets. Summer. - - - *S. laurifolia*
- e. Leaves ovate or oblong or round-ovate, - - - - - f
- e. Leaves fiddle-shaped or hastate; peduncles long; stems high-climbing, prickly; berries black. Moist thickets. Early Summer. - - - *S. Bona-nox (tamnoides), Stretch-berry*
- f. Plants prickly, - - - - - g
- f. Plants unarmed, except few prickles on the lower stem; peduncles 3-4 times as long as the petioles; leaves 7-9 or 11 veined, often contracted in the middle; berries black. Dry soil. Spring. - *S. Pseudo-China, Bamboo-vine, or China-brier*
- g. Leaves green, peduncles not longer than the petioles, - - - h
- g. Leaves glaucous beneath, 5-7 veined; peduncles 2-3 times as long as the petioles; berries bluish black, glaucous. Sandy soil. Spring. - - - *S. glauca*
- h. Berries bluish black; stems climbing high. Swampy thickets. Early Summer. - - - *S. rotundifolia*
- h. Berries coral-red; stem low with few prickles near the base. Swamps. Spring. - - - *S. Walteri*

The *Smilax* of the florists, cultivated for decoration, is *Asparagus medeoloides*, and belongs with the vegetable *Asparagus officinalis* to the *Convallariaceae* or *Lily of the Valley Family*.

Asparagus plumosus with the branches in elegant sprays, short clustered leaves, and white flowers, is cultivated in several varieties under the name of *Asparagus-fern*.

34. *Leucojaceae (Amaryllidaceae), Amaryllis Family.*

Herbs with basal, usually sheathing leaves; perfect flowers with an epigynous perianth of 6; stamens 6 inserted on a disk or on the throat of the perianth, filaments sometimes united at the base or connected by a crown; inferior or half inferior ovary, 1-3 celled; 1 style with an entire or 3-lobed stigma.

1. Stamens connected by a membrane forming a crown upon the perianth; scape terminated by a single flower or by a bracted umbel.
Hymenocallis (*Paneratium*), *Spider Lily*
 - H. rotatum. Leaves linear; flowers 2-6 on the scape, white with short, greenish tube. Low sandy places. Early Summer.
 1. Stamens not connected that way, - - - 2
 2. Parts of the perianth united into a tube, growing from bulbs, - - - 3
 2. Parts of the perianth distinct down to the ovary, growing from rootstocks, 4
 3. Tube long and slender, abruptly spreading; stamens exserted, anthers versatile; style elongated, - - - Cricium
 - C. Americanum. Succulent scape topped by a 2-4 flowered umbel, with a broad, 2-valved spathe; perianth white with green tube. River-swamps. Summer.—Several species of Cricium are cultivated.
 3. Tube short or long, gradually expanding; scape fleshy, 1-flowered; stamens adnate to the throat of the tube, anthers versatile; style filiform, - - - Atamasco (*Zephyranthes*)
 - A. Atamasco, *Atamasco-lily*, *Easter-lily*, *Amaryllis*. Perianth white or light purple; stamens included. Low ground. Spring.—Some species with red or red-striped flowers are cultivated.
 4. Ovary half-inferior; stems scape-like, leaves mainly basal; flowers in an elongated, interrupted, terminal raceme; stamens included. Sandy pine-woods. Early Summer. - - - Aletris, *Colic-root*
 - A. Aurea, with a yellow, campanulate perianth.
 - A. obovata, with a white, obovoid perianth,
 4. Ovary wholly inferior; acaulescent, leaves grass-like; scapes solitary or tufted; flowers solitary or umbelled; stamens short; perianth yellow within, - - - Hypoxis, *Star-grass*
 - H. juncea with sheathing filiform leaves. Pine-land. Spring.
 - H. erecta with hirsute linear leaves. Sandy soil. Spring to Fall.
- Among the cultivated plants of this family are:
- Galanthus nivalis* or *Snowdrop* (flowers white), *Leucojum vernum* or *Snowflake* (sepals white, tipped with green or yellow),—both with a regular perianth like *Hypoxis*. Further: *Eucharis grandiflora*, *Amazon Lily*,—and many species of *Narcissus* cultivated as *Daffodils* and *Jonquils*, with a firm cup crowning the perianth. Finally the *Agave* or *Century-plant*, also called *American Aloe*, and *Polyanthes tuberosa*.

35. Tamaceae, Yam Family.

Twining vines from rootstocks; simple and petioled leaves, opposite or whorled near the base of the stem and alternate above; flowers monœcious or diœcious in axillary inflorescence; perianth 6, partially united, green or whitish; stamens 3-6; ovary 3-celled, inferior; styles 3 with entire stigmas; fruit a capsule.

Dioscorea villosa, *Wild Yam*. Stem herbaceous; leaves cordate, 7-11 veined, on slender petioles; flowers whitish; the sterile in panicles, the fertile in racemes or spikes. Low ground. Summer.

36. Ixiaceae (*Iridaceae*), *Iris Family*.

Caulescent herbs from rootstocks; leaves equitant

and 2-ranked; perfect flowers solitary or in clusters, with a 2-leaved spathe; perianth 6-parted, colored; stamens 3, adnate to the perianth; inferior ovary, 3-celled; fruit a capsule.

1. Styles filiform or united. - - - - - 2
 1. Styles petal-like, arching over the stamens;—rootstock creeping or tuberous; our species with leafy tall stems and sword-shaped blades; flowers solitary or spiked, showy. Swamps. Spring and Summer. - - - - - Iris, *Blue Flag*, *Fleur-de-lis*.
 1. tripetala. Flowers terminal, usually solitary, blue with yellow and purple; lobes crestless, tube shorter than the ovary.
 1. versicolor. Flowers terminal, single or spiked, blue or lilac with white-yellow or purple; lobes crestless, tube shorter than the ovary.
 1. hexagona. Flowers axillary and terminal, solitary, nearly sessile; violet-blue with white, yellow and purple; lobes crested, tube longer than the ovary.
 2. Styles each parted into two filiform segments;—rootstock coated bulb-like; narrow, folded, alternate leaves; flowers 1-3 with two-fugacious bracts, showy. Pine-woods. Spring and Summer; - *Nemastylis*.
 - N. (*Ixia*) *coelestina*. Leaves diminishing upward till bract-like; flowers solitary, bright blue; the lobes of the perianth broadest above the middle.
 2. Styles filiform or mostly united;—stamens united; grass-like herba with linear leaves: scapes 2-edged or 2-winged, terminated by clusters of blue, white or yellow flowers. - *Sisyrinchium*, *Blue-eyed Grass*.
 - S. *Bermudiana*. Mostly in dry soil. Spring and Summer.
- Cultivated species in this family are: *Crocus*, raised from corms, blooming mainly in early Spring; *Freesia*, blooming in Fall and Winter; *Gladiolus*, blooming in Summer; the *Ixias* of early Spring are noted for their wide range of color.

37. Hamodoraceae, Bloodwort Family

Herbs with rootstocks; leaves elongated, chiefly basal; flowers perfect in terminal spikes, panicles or cymes; sepals, petals and stamens each 3; ovary inferior, 3- or 1-celled, style 1; fruit a 3-valved capsule, generally with few seeds.

Gyrotheca (*Lachnanthes*) *tinctoria*. Rootstock red; stem corymbosely branched above; leaves basal; flowers yellowish, woolly outside. Swampy pine-land. Spring to Fall.

Sansevieria Zeylanica, *Bowstring Hemp*, is cultivated as a pot-plant for its long sword-shaped leaves, which are transversely marked with grayish white.

38. Cannaceae, Canna Family.

Herbs with erect stems and alternate, thick leaves on sheathing petioles; flowers in terminal spikes, usually with a showy perianth; sepals 3; petals 3 united below; stamens petal-like, only one with a marginal anther;

ovary inferior, with petal-like style and marginal stigma; fruit a 3-celled capsule.

Canna flaccida. Stem mostly simple, leaves oblong-elliptic; spikes with few, yellow flowers. Mfy swamps. Summer.

Maranta and *Calathea*, closely allied with this family, as well as species of *Canna*, are cultivated for their foliage.

39. Musaceae, *Banana Family*.

Tall scapose herbs, commonly perennial by root-stocks or tubers; the very large leaves alternate, with sheathing petioles and the veins parallel, diverging from the midvein; flowers irregular, in clusters, each cluster subtended by a large colored bract; perianth 6-parted, 5 of the segments united and 1 distinct; stamens 3-6, some of them abortive; ovary inferior, 3-celled, styles united; fruit indehiscent, pulpy or dry. Cultivated in many species and varieties.

Musa Sapientum, *Banana*. Tall scape, partly sheathed by the leaf-stalks; the pink or purple flowers in a nodding spike; perianth of 2 unequal leaves, the lower 5-toothed; filaments 6, anthers 6, each 2-celled; fruits in a huge cluster, seeds abortive. Cultivated for ornament.

40. Burmanniaceae, *Burmanna Family*.

Small herbs with slender stems, scale-like leaves, and regular, perfect flowers; perianth 6-cleft, colored; stamens inserted on the tube of the perianth; ovary inferior, style 1, stigmas 3 or 1; fruit a capsule.

Leaves grass-like or wanting, making the stem look scape-like; ovary 3-celled; stigma 3-lobed or capitate. Flatwoods. Summer and Fall.

Burmanna

B. biflora, with simple or forked stem, 1-2 flowers at the end of a branch; perianth blue, the outer lobes ovate and erect, the inner linear and incurved.

B. capitata, with simple stem and flowers in a terminal cluster; perianth white or pale blue, the outer lobes deltoid, the inner linear and involute.

41. Orchidaceae, *Orchid Family*.

Herbs from tuberous or fibrous roots, corms or root-stocks; leaves mostly sheathing at the base, sometimes reduced to scales; irregular, perfect flowers, solitary or in an inflorescence; perianth 6-parted, the 3 sepals and 2 of the petals similar in form, but the third petal (lip), different. Stamens 1 or more, united with the style into a column; anthers 1 or 2, containing 2, 4 or 8 waxy or powdery POLLINIA; ovary inferior, 1-celled, more or

less twisted; style 1, stigma a viscid surface; fruit a 3-valved capsule; seeds minute, numerous.

1. Anther one, adnate to the column, erect, persistent. - - - 2
1. Anther one, attached to the apex of the column like a lid, deciduous. - - 4
2. Lip spurred. - - - 3
2. Lip spurless, with two callosities at the base;—flowers in terminal more or less spiral spikes, small, white or yellowish. In damp soil. - *Gyrostachis* (*Spiranthes*), *Twisted Orchis* or *Ladies' Tresses*
G. gracilis. Stem slender, scape-like; spike one-sided or spiral. Summer.
G. praecox (*S. tortilis*). Stem tall and slender, spike spiral. Summer.
G. odorata. Stem stout, leafy; spike thick, spiral. River-banks. Fall.

3. Lip fringed or cut-toothed;—flowers in terminal spikes, bracts sometimes leaf-like. In swamps.

Blephariglotis (*Platanthera*), *Fringed Orchis*

- B. cristata*. Stem stout, leaves linear, spike oblong; flowers small, yellow, with slender spur. Summer.
- B. ciliaris*. Stem stout, leaves oblong, spike oval; flowers large, orange, with slender spur. Summer.
- B. blephariglotis*. Stem stout, leaves oblong, spike oval; flowers white, with slender spur. Summer.
3. Lip 3-parted, anther with slender appendages;—flowers in terminal spikes, stems leafy. In the flatwoods. - - - *Habenaria*
H. distans. Stem scape-like with oblong leaves at the base; spike few-flowered, flowers white, spur club-shaped. Summer.
H. repens. Leaves many, lanceolate, sheathing; spike many-flowered, flowers greenish, spur filiform. Late Summer.
H. quinqueseta (*Micheauxii*). Leaves oblong, spike few-flowered, flowers, white, spur long, slender. Summer.
3. Lip entire or 3-toothed, anther without appendages;—stem with alternate leaves. In pine-barren swamps.

Gymnadenopsis (*Gymnadenis*)

- G. nivea*. Stem slender with linear leaves on the lower part; spike cylindric, flowers white or pink; ovary not twisted; spur filiform, not shorter than the ovary. Summer.
- G. integra* (*flava*). Stem slender with broadly linear leaves below; spike oblong, flowers orange-yellow; ovary twisted; spur filiform, shorter than the ovary. Summer.
4. Pollen in powdery masses. - - - 5
4. Pollen in waxy masses. - - - 6
5. Scapose herbs from corms, flowers in a terminal spike or raceme;—scape erect, bearing below the middle a single narrow leaf; lip hinged, bearded on the surface. Low pine-land.

Limodorum (*Calopogon*), *Grass Pink*

- L. pallidum* (*C. pallidus*). Spike interrupted, 10-20 flowered; flowers white tinged with purple; filaments on lip purplish. Early Summer.
- L. tuberosum* (*C. pulchellus*). Spike not dense, 3-20 flowered; flowers purple; filaments on lip pink, yellow or orange. Summer.
- L. graminifolium* (*C. parviflorus*). Spike 3-7 flowered, flowers bright purple; filaments on lip yellow. Spring.
5. Caulescent herbs from slender roots, flowers 1-2 at the top of the

stem;—stem erect, few-leaved; leaves basal and 1 or 2 on the stem; flowers nodding. In swamps. - - -

Pogonia

P. ophioglossoides. Perianth rose-colored, sepals and lateral petals of equal length; lip spatulate, bearded and crested. Spring.

P. divaricata. The purplish brown sepals longer than the pink-colored lateral petals; lip 5-lobed, merely crested, greenish veined with purple. Early Summer.

6. Caulescent herbs with short corms;—low herbs with 1-2 leaves on the stem; small flowers in a terminal raceme, white or greenish; sepals spreading; lateral petals very narrow; lip broad, cordate or sagittate at the base; pollinia 4, united by pairs. River-hammock. - - -

Achroanthes (Microstylis), Adder's Mouth

A. unifolia (M. ophioglossoides). Flowers in a short raceme, pedicles slender, lip 3-toothed at the apex. Summer.

6. Epiphytes clinging to the bark of trees;—flowering stems simple or branched, each terminated by a raceme or panicle; sepals and petals nearly equal, spreading; lip 3-lobed; spur none. All but one species in South-Florida; on trees in hammocks.

Epidendrum, Tree-Orchis

E. conopseum. Plants tufted, roots matted, leaves leathery and sheathing at the base; perianth green tinged with purple. Summer.

Spermatophyta. Dicotyledones.

42. Saururaceae, Lizard's-tail Family.

Caulescent herbs with alternate or sometimes basal leaves; flowers perfect, but instead of a perianth small bracts; inflorescence a terminal spike or raceme; stamens 8-8, hypogynous, anthers introrse; ovaries 3-4, distinct or more or less united; stigmas introrse; fruit dry or berry-like.

Saururus cernuus. Marsh herbs with jointed stems, erect from a swollen base, simple or branched; leaves winged petioled, ovate-lanceolate to cordate or hastate, acuminate, dark green; flowers small, white, in a terminal raceme with drooping apex. Summer.

43. Piperaceae, Pepper Family.

Chiefly herbs with leathery, fleshy or thin leaves; flowers in solitary or clustered spikes subtended by bractlets; perianth absent; stamens 2-6, hypogynous, with distinct filaments; ovary 1-celled with the 3 stigmas in a brush-like tuft; fruit a small drupe with a solitary seed.

Leaves petioled, flowers perfect, minute, stamens 2, - - - *Peperomia*

P. leptostachya. Stems erect, slender; leaves opposite or whorled, thin, finely pubescent; spikes very slender and loosely flowered. In damp woods along the river.

P. Magnoliifolia. Stems stout; leaves alternate, leathery; spikes slender, densely flowered. Hammocks.

Black and white pepper comes from *Piper nigrum*, with alternate leaves; dioecious, minute flowers in drooping axillary spikes; stamens 1-4.

44. Juglandaceae, Walnut Family.

Monœcious trees with alternate leaves, odd-pinnate, rarely entire. Sterile flowers in lateral aments with an irregular 2-6 lobed calyx, or only a single bract, or none; stamens in rows on the calyx. Fertile flowers solitary or clustered, terminal, with a calyx of 1-several parts inserted on the ovary. Fruit drupe-like, the hard or fibrous husk enclosing a crustaceous or bony nut; seed 4-lobed. Flowers in Spring, mature fruit in Fall.

1. Bark furrowed, leaves membranous; staminate aments stout, simple, short-stalked; husk indehiscent, nut with ridges. Juglans
 - J. cinerea, *Butternut, White Walnut*. Bark light-brown, heartwood pale; leaflets 11-17, lanceolate to oblong; fruit elongated, viscid-pubescent; nut 1-celled above and 2-celled below the middle. Cultivated.
 - J. nigra, *Black Walnut*. Bark dark-brown, heartwood dark-brown; leaflets 15-23, the terminal one often suppressed, ovate or ovate-lanceolate; fruit subglobose, glabrous; nut 2-celled above and 4-celled below the middle. In rich soil and cultivated.
1. Bark close or scaly, leaves leathery; staminate aments slender, branched, mostly long-stalked, almost sessile in *Pecan*; husk dehiscent, nut smooth. Hicoria (Carya)
 - a. Lateral leaflets falcate; foliage pubescent when young, glabrous with age. b
 - a. Lateral leaflets not falcate, d
 - b. Seed sweet;—bark somewhat rough; leaflets 9-15, oblong-lanceolate, acuminate; fruit oblong, with thin 4-valved husk; nut terete, smooth and even. Cultivated. c
Hicoria Pecan (Carya olivaeformis), Pecan-nut
 - b. Seed bitter; leaflets lanceolate, acuminate; fruit subglobose with thin 4-valved husk, c
 - c. Bark rough, flaky; leaflets 9-13; nut 4-angled, corrugated. In river-swamps. Hicoria (Carya) aquatica, Water-Hickory
 - c. Bark smooth, close with shallow furrows and flat ridges; leaflets 5-9; nut slightly flattened, smooth. In low woods. Hicoria minima (Carya amara) Bitter-nut
 - d. Seed sweet, e
 - d. Seed bitter and astringent;—bark smoothish, close with flat ridges; foliage glabrous; leaflets 3-7-9, oblong, acuminate; fruit subglobose to pyriform with tardily separating husk; nut angled, often brown. Hicoria (Carya) glabra, Pignut
 - e. Bark shaggy and scaly; foliage tomentose, leaflets 7-9, oblong, short-acuminate; fruit globose with thick, readily splitting husk; nut slightly flattened, angled. In rich soil. Hicoria alba (Carya tomentosa), Hickory.
 - e. Bark separating in large plates; foliage pubescent when young.

becoming glabrous with age; leaflets 5-7, oval or oblong-lanceolate, acuminate; fruit subglobose with thick 4-valved husk; nut slightly flattened, slightly angled, with thin shell. Rich soil. *Hicoria ovata* (*Carya alba*), *Shell-bark Hickory*

45. Myricaceae, Bayberry Family.

Mostly dioecious, aromatic shrubs with alternate, resinous-dotted leaves; flowers without perianth disposed in axillary aments; the sterile ones consisting of 2-8 stamens on a bract, the fertile ones consisting of a 1-celled ovary with 2 filiform stigmas, and at its base surrounded with a row of scales; fruit a dry 1-seeded drupe.

Leaves entire or toothed; scales of the ovary 2-4, minute. *Morella* (*Myrica*)

M. cerifera, *Wax-myrtle*. An evergreen shrub; leaves leathery, oblanceolate, entire, but often toothed toward the apex, tapering into slender petioles; staminate aments numerous, with wedge-shaped bracts; pistillate aments shorter, with broadly-ovate bracts; fruit white. Wet sandy soil; flowers in Spring, fruit in Fall.

M. pumila. A much-branched low evergreen with numerous, obovate leaves, narrowed at the base; aments minute. Sandy pine-barrens.

M. inodora. An evergreen shrub with whitish bark; leaves leathery, oblong-obovate, entire, with short, partially winged petioles; staminate aments stout, pistillate slender; fruit black, often solitary. Margins of pine-barren ponds. Early Spring.

46. Salicaceae, Willow Family.

Dioecious trees or shrubs with alternate simple leaves, and flowers in bracted aments; instead of the perianth a gland or a disk; stamens 2-many; ovary 1-celled, style short and more or less divided, stigmas 2-lobed; fruit a capsule.

1. Trees with furrowed bark, the stout twigs terminated by scaly winterbuds; leaves palmately veined, coarsely toothed or lobed, the petioles subtended by membranous caducous stipules; flowers appearing before the leaves; stamens more than 10 with red or purple anthers; style short with dilated stigmas, *Populus*

P. deltoides, *Cotton-wood*, *Poplar*, *Aspen*. Large tree with deeply-ridged grayish trunk, spreading angular branches, stout olive-green twigs, and glabrous foliage; leaves broadly ovate to deltoid, the flattened petioles nearly as long as the blades; stamens more than 60; bracts of aments scarious. Riverbanks. Early Spring.

1. Trees or shrubs with more or less flaky bark, the slender flexible twigs carrying winterbuds with a single scale each; leaves pinnately veined, finely toothed; petioles short with leafy or scaly stipules; flowers appearing with or before the leaves; stamens less than 10 with yellow or reddish anthers; style usually short, stigmas filiform, *Salix*

S. nigra, *Water-willow*. Tree with flaky bark and brown twigs; leaves lan-

ceolate, paler beneath; petioles somewhat pubescent; stamens 3-7; bracts pubescent, white. Riverbanks. Spring.

47. Betulaceae, Birch Family.

Monœcious shrubs or trees with smooth or shining bark; leaves alternate, simple, with straight parallel lateral veins; sterile aments usually drooping with each bract subtending 2-3 flowers, flowers with a calyx; fertile aments usually erect, the bracts thickened, flowers without a calyx; ovary 2-celled.

1. Calyx of the staminate flowers 4- or 2-lobed, stamens 2 with very short filaments; bracts of pistillate flowers 3-flowered, deciduous. - *Betula*
- B. nigra*, *River-birch*, *Red Birch*. Tree with slender trunk, its bark brown at the base and silvery or yellow higher up; leaves rhombic-ovate, abruptly narrowed into a broadly cuneate base; petioles and veins of lower side of leaves pubescent; the fruiting aments short-peduncled, cone-like. Riverbanks. Spring.
1. Calyx of the staminate flowers 4-or more lobed, stamens as many as the lobes and opposite them; bracts of pistillate flowers 2-flowered, persistent. - *Alnus*
- A. rugosa* (*serrulata*), *Smooth Alder*. Shrub or small tree with pale smooth bark; leaves short-petioled, obovate or oval; sterile aments appearing before the leaves; fertile aments very small, cone-like. Riverbanks. Early Spring.

48. Fagaceae, Beech Family.

Monœcious shrubs or trees; alternate leaves simple, entire, toothed or lobed; sterile flowers in aments, perianth of 4-7 partially united parts, stamens 4-20 with distinct filaments; fertile flowers solitary or several in aments, perianth of 4-8 partially united parts; ovary 3-7 celled, adnate to the perianth; styles and stigmas as many as there are cells in the ovary; fruit a 1-seeded nut in a scaly or spiny involucre.

Besides the *Beech*, *Fagus*, this family has the following genera:

1. Staminate aments erect, stamens 10-20, style 6, nuts 1-3 included in a spiny involucre or bur. - *Castanea*
- C. pumila*, *Chinquapin*. Shrub or tree with smooth bark; the petioled leaves oblong or obovate, sinuate-toothed, glabrous above and white-tomentose beneath; nuts 1, rarely 2, in a bur. Dry sandy soil. Late Spring.
1. Staminate aments drooping, stamens 6-12, style 3, nut seated in an involucre of imbricated scales, or cup; nut and cup called *acorn*. - *Quercus*, *Oak*
- a. Leaves or their lobes bristle-tipped; fruit often pubescent inside. - b
- a. Leaves or their lobes without bristles (except on shoots), fruit often glabrous inside. - i
- b. Stem erect or ascending; fruit maturing the second season. - c
- b. Stem underground, branches erect or ascending; fruit maturing

the first season;—a low shrub with thickish, narrowly-oblong leaves; acorns sessile or nearly so. In sandy land near the coast.

Q. pumila, Running Oak

- c. Leaves deciduous, sometimes almost persistent, - - d
- c. Leaves evergreen;—shrub or small tree with smooth bark; the leathery leaves small, obovate or oval, entire, or sinuate-toothed on the shoots; acorns sessile or nearly so; nut dark brown, often striate. On sandy ridges along the coast.

Q. myrtifolia (arenaria), Myrtle Oak

- d. Leaves little or not at all dilated at the apex, not lobed except on shoots, sometimes with one or a few teeth near the apex, - - g
- d. Leaves dilated upward, 3-lobed near the apex, - - f
- d. Leaves pinnatifid or pinnately lobed; green and glabrous on both sides, - - e
- e. A small tree with thick, furrowed, blue-gray bark; leaves broad, usually deeply pinnately lobed, and narrowed into a short petiole; acorns short-peduncled, cup saucer-shaped or more or less turbinate. On sandy ridges. - *Q. Catesbaei, Turkey Oak*
- e. A tall tree with an irregularly ridged bark; leaves oblong to obovate, 5-7 lobed, usually toothed, and lobes and teeth bristle-tipped; acorns sessile or short-peduncled, cup turbinate,

Q. coccinea, Scarlet Oak

- f. Cup of acorn shallowly saucer-shaped; leaves glabrous, thick;—a tree with fairly smooth bark; leaves oblanceolate or spatulate, entire or 3-lobed at the apex, those of the shoots often pinnatifid, glabrous on both sides or slightly tomentose beneath, almost evergreen, the principal veins ending in bristles; acorns sessile or short-peduncled, nut subglobose, pubescent. In not too dry, sandy soil. *Q. nigra, L. (Q. aquatica, Walt.) Water-Oak*

- f. Cup of acorn hemispherical; leaves brown-tomentose beneath;—a tree with rough, black bark; leaf-blades obovate, 3-5 lobed at the apex or with one much-dilated endlobe; acorns sessile or short-peduncled, nut subglobose or ovoid. Dry gravelly or sandy soil. - *Q. Marylandica (Q. nigra, Wang.), Black Jack*

- g. Leaves glabrous on both sides, - - - h

- g. Leaves gray-tomentose beneath;—a tree with gray and scaly bark; leaves oblong to oblanceolate; acorns nearly sessile, cup saucer-shaped, nut oblong or subglobose. Dry pine-barrens.

Q. brevifolia (cinerea), Highground Willow Oak

- h. Tree almost evergreen, with nearly smooth bark; leaves linear-oblong to narrowly elliptic, acute and bristle-tipped at the apex, usually entire except on young shoots; acorns sessile or nearly so, cup saucer-shaped, nut subglobose. In moist sandy soil; planted as a street-tree together with *Q. aquatica* under the name of "Water Oak." - *Q. Phellos, Willow Oak*

- h. Tree with an almost black bark; leaves oblong, entire, or lobed on shoots, or pinnatifid, bristle-tipped; acorns nearly sessile, cup saucer-shaped with a constricted base, nut ovoid or subglobose. Moist sandy soil near the coast. - *Q. laurifolia, Laurel-Oak*

- i. Leaves deciduous;—shrub or small tree with obovate thickish leaves, undulate or shallowly 3-lobed near the apex, lustrous above and sparingly pubescent beneath, nearly sessile; acorns

sessile or nearly so, cup hemispherical, nut about twice as long as the cup. In sandy barrens.

Q. Chapmani (*Q. obtusifolia* var. *parvifolia*)

- 1. Evergreens, - - - - - k
- k. Stems underground, branches erect;—a low shrub forming wide patches by the spreading of its stems. In flat pine-barrens near the coast. - *Q. Minima* (*Q. virens* var. *dentata*), *Dwarf Live Oak*
- k. Stems erect, - - - - - l
- l. Shrub with gray bark; leaves oblong, strongly revolute, rugose-reticulated, glabrous above and finely pubescent beneath; cup turbinate, tomentose, fringed at the edge; nut twice longer than the cup. Sandy soil. - *Q. geminata*, *Shrub Live Oak*
- l. Stout tree with grayish, furrowed bark; leaves obovate, oblong or oval, entire except on the shoots, somewhat revolute, glabrous on both sides or sometimes sparingly pubescent beneath, never rugose; acorns solitary or spicate at the end of long peduncles; cup hemispheric, nut twice longer than the cup. Sandy soil near the coast, and planted.

Q. Virginiana (*Q. virens*), *Live Oak*

49. Artocarpaceae (Moraceae), *Mulberry Family*.

Trees or shrubs with milky juice, alternate leaves, and deciduous stipules; flowers monœcious or diœcious in spikes or heads, or on the inside of a closed receptacle; perianth of the staminate flowers 3-4 lobed, with 3-4 stamens inserted at its base; perianth of the pistillate flowers 3-5 lobed, finally enveloping the achene; ovary 1-2 celled, styles and stigmas 1-2; fruit a syncarp or syconium. — Members of this family are planted for ornament or fruit; they bloom in late Spring or Summer.

Morus alba, *White Mulberry*, a small tree with the staminate and pistillate flowers in spikes; fruit subglobose or oval-oblong, white or pinkish.

Morus nigra, *Black Mulberry*, a small tree or shrub with cylindrical staminate spikes and oval pistillate spikes; fruit oval-oblong and black when mature.

Morus rubra, *Red Mulberry*, a tree with slender staminate spikes and drooping pistillate spikes; fruit cylindric and deep red or purplish.

Broussonetia papyrifera, *Paper Mulberry*, a low wide-spreading tree with diœcious flowers, the staminate in elongated spikes, the pistillate in heads; the globose fruit peduncled.

Toxylon pomiferum, *Osage-Orange*, an armed shrub or tree, diœcious, with the staminate flowers in globose racemes, the pistillate in dense heads; the oblong flat achenes collected into a large globose golden-yellow syncarp.

Ficus Carica, *Fig*, a shrub or mostly a small monœcious tree, with firm leathery leaves, palmately 5-7 lobed, on densely pubescent petioles; the flowers on the inside of a closed receptacle; fruit an obovoid syconium.

Ficus elastica is the well-known *Rubber-plant*, cultivated as a pot-plant.

50. Ulmaceae, *Elm Family*.

Mostly trees with spreading, often winged branches,

and alternate simple leaves; flowers in cymes or clusters, perianth a green or slightly colored calyx; stamens usually as many as the sepals and opposite to them, distinct; ovary 1-2 celled, superior; fruit a stalked samara or drupe.

Fruit a samara winged all around, - - - *Ulmus, Elm*

U. Americana, *White Elm*. A tree with oval or ovate leaves, usually doubly serrate, oblique or cordate at the base; flowers clustered, calyx campanulate; samara oval or obovate, fringed, the tips strongly convergent; seed central, oval or elliptic. Low ground and planted. Winter or early Spring.

51. Polygonaceae, Buckwheat Family.

Herbs, shrubs, trees (South Florida), or vines with simple, alternate opposite or whorled leaves, mostly simple; stipules mostly present and usually forming sheaths, called ocreae; flowers perfect, monœcious, dioecious or polygamous in variously disposed clusters; calyx inferior of 2-6 sepals, more or less united; stamens 2-9; ovary 1-celled, styles 2-8, stigmas capitate or tufted or 2-cleft; fruit an achene.

1. Ocreae wanting, - - - - - 2
1. Ocreae present, - - - - - 3
2. Herbs or shrubby, erect plants; flowers or umbellate clusters in involucre of partially united bracts; calyx more or less colored, of 6 sepals; stamens 9, styles 3, - - - *Eriogonum*
E. tomentosum, *Dog tongue*, with stem-leaves in whorls of 3-5. Dry pine-land. Spring to Fall.
2. Vines with tendrils at the ends of the branches, flowers in paniced racemes subtended by bracts; sepals 5; stamens 7-10, styles 3, *Brunneria*
B. cirrhosa, with alternate leaves; ocreae sometimes represented by a ring of short hairs. Riverbanks. Spring and Summer.
2. Climbers with flowers in racemes which end in branching tendrils; sepals 5, colored, the 2 interior ones narrower; stamens 8; styles 3, - - - *Antigonon*
A. leptotus, *Rosa de Montana, Mexican Vine*. Leaves cordate, acuminate; flowers rose-pink. Cultivated. Summer.
3. Sepals 4, the 2 lateral ones overlapping the others,—herbs, woody at the base, with alternate leaves; ocreae cylindric, fringed with bristles; flowers in long interrupted racemes; calyx somewhat colored; stamens 4-5; styles 2, exserted, - - - *Tovara*
T. Virginiana, stem erect or reclining. In thickets. Summer and Fall.
3. Sepals 5, - - - - - 4
3. Sepals 6, - - - - - 7
4. Stamens 4-5; rarely 8; styles 2, sometimes 3;—herbs neither twining nor climbing, with alternate leaves; ocreae mostly membranous, naked or bristly; flowers in spike-like racemes; calyx white, green or reddish, - - - *Persicaria*

- P. setacea*, *Smartweed*. Erect herbs, strigose; ocreae with long bristles; racemes erect, almost linear; calyx pinkish, stamens 8. In swamps. Late Summer.
- P. hirsuta*, *Smartweed*. Erect, decumbent or creeping herbs, hirsute with reddish hairs; ocreae with short bristles; racemes erect and linear; calyx white; stamens 8 or less. In wet soil. Spring to Fall.
4. Stamens 8, styles 3, - - - - - 5
5. Erect herbs, more or less shrubby, - - - - - 6
5. Twining vines;—leaves alternate; ocreae oblique, naked or fringed at the top or the base; flowers in loose racemes; calyx green or yellowish white, three of the sepals keeled or winged, - *Timaria*
- T. (*Polygonum*) *convolvulus*, *Black Bindweed*. Calyx green, outer sepals keeled at maturity. In cultivated ground. Late Summer.
6. Stems conspicuously jointed and striate;—leaves alternate; ocreae cylindric; flowers on jointed pedicels; calyx white or pink, three of the sepals usually winged, - *Polygonella*
- P. polygama*, *Jointweed*. Branched near the base; calyx white or pinkish. In sandy soil near the coast. Summer and Fall.
- P. macrophylla*, *Jointweed*. Branched above; calyx purplish. In sandy soil. Summer and Fall.
6. Stems not jointed, terete;—leaves alternate, narrow, sessile; ocreae cylindric, fringed with long bristles; filaments of stamens spirally twisted, - *Thysanella*
- T. *fimbriata*. Branched above; calyx white or pink. In dry pine-land. Summer and Fall.
7. Stamens 6, styles 3;—leaves alternate, ocreae thin and brittle; flowers green, in whorls disposed in panicles, - *Rumex*
- R. *acetosella*, *Sheep-sorrel*. Leaves hastate, flowers dioecious, three inner sepals without wings; plants sour. Dry soil. Spring to Fall.
- R. *hastatulus*, *Dock*. Leaves mostly hastate, flowers dioecious, inner sepals with wings; plants sour. Sandy soil. Spring.
- R. *verticillatus*, *Water-dock*. Leaves not hastate; wings of sepals broadly deltoid, undulate or shallowly toothed. In swamps. Summer.
- R. *crispus*, *Yellow dock*. Stout plants with fusiform, yellow roots; leaves strongly crisped. Around dwellings. Summer.
- R. *obtusifolius*, *Bitter-dock*. Stout plants, leaves more or less crisped; sepals hastate with 3-5 spine-like teeth, one bearing a tubercle. Summer.
7. Stamens 9, styles 3;—calyx white, sepals all similar; flowers fasciculate in racemed panicles, - *Rheum*
- R. *Rhaponticum*, *Pie-plant*, *Rhubarb*. Leaves very large, the petioles juicy and acid. Cultivated.

52. Chenopodiaceae, Goosefoot Family.

More or less fleshy herbs, chiefly weed-like, or shrubby plants, rarely vines; leaves alternate or opposite, exstipulate; bracts not scarious; flowers greenish, sometimes single, mostly clustered; calyx of 2-5 sepals; stamens as many as sepals or lobes, or less; ovary 1-celled, styles 2-5 more or less united; fruit a utricle.

1. Herbs with leaves normal: flowers perfect or some of them pistillate.

calyx fleshy or herbaceous, and when mature without a wing,

Chenopodium, Pigweed

- C. *album*. Flowering branches longer than the accompanying leaves; mature sepals keeled; lower surface of the leaves glaucous. Waste places. Spring to Fall.
- C. *murale*. Flowering branches shorter than the accompanying leaves; mature sepals not keeled; leaves glabrous or somewhat glaucous beneath. Waste places. Summer and Fall.
- 2.. Herbs or low shrubs with scaly pubescence, leaves normal; flowers dioecious or monocious, pistillate flowers without a calyx; fruit enclosed in two bractlets, - - *Atriplex, Orache*
- A. *arenaria*. Fruiting bractlets united to above the middle.
- A. *cristata*. Fruiting bractlets united only at the base; styles included. Both on the coast. Spring to Fall.
3. Fleshy, glabrous herbs with the leaves, reduced to scales or mere ridges, opposite at the numerous nodes; flowers perfect or polygamous, 3-7, in cavities at the joints.—*Salicornia, Glasswort* or *Samphire*
8. *ambigua*. Stem decumbent or trailing. On the coast. Summer and Fall.
- Cultivated in this family are: *Beta vulgaris, Beet* and *Mangelwurzel*; and *Spinacia oleracea, Spinach*.

53. *Amaranthaceae, Amaranth Family.*

Coarse herbs, rarely shrubs, with exstipulate simple and entire leaves; inconspicuous flowers subtended by variously colored bracts, and collected into terminal or axillary inflorescences; calyx of 2-5 herbaceous or corolloid sepals; stamens 5 or less, hypogynous, opposite to the sepals; staminodia sometimes present; ovary 1-celled, with 1-5 stigmas; fruit a membranous utricle, rarely a berry.

1. Anthers 2-celled, filaments distinct, - - - 2
1. Anthers 1-celled, filaments united into a long tube;—leaves opposite, blades sessile; flowers subtended by 3 blackish bracts and sometimes with bractlets, in dense spikes arranged in panicles; calyx 5-cleft; stamens 5, style short or wanting, - - - *Frœlichia*
- F. *Floridana*, an erect or ascending, slender herb with few pubescent leaves; the calyx-tube with deeply toothed crests and minute tubercles; spikes at the top of the stem. In dry, sandy places. Spring to Fall.
2. Perianth present in all flowers;—herbs with alternate leaves, the blades flat, undulate or crisped; flowers subtended by 3 green, red or purplish bracts; sepals 2-5, stamens 2-5, styles or stigmas 2-3. Waste places. Summer and Fall. - - - *Amaranthus*
- A. *hybridus, Pigweed*. Upper flowers in dense, terminal, drooping spikes; sepals and stamens 5.
- A. *spinosus, Spring Amaranth*. Stems with a pair of spines at each leaf-axil, spikes erect or nodding; sepals and stamens 5.
- A. *albus, Tumble-weed*. Flowers in small axillary clusters; sepals and stamens 3.

2. Perianth wanting in the pistillate flowers;—branching stems with alternate, petioled, narrow leaves; dioecious flowers subtended by 1-8 bracts; whitish, staminate flowers with 5 mucronate sepals, and 5 distinct stamens; pistil with 2-5 stigmas, - Acaulis
- A. australis, *Water-hemp*, a stout, smooth, somewhat fleshy herb, widely branching; the staminate flowers in slender spikes, panicled, leafy bracted at the base, naked above. In marshes near the coast. Summer and Fall.
- Cultivated is *Celosia cristata*, *Cock's comb*, with crimson to white flowers in spikes, bracts 8, sepals and stamens 5, stigmas 2 or 3.

54. Corrigiolaceae (Illecebraceae), *Whitlow-wort Family*.

Erect or creeping and tufted herbs, with opposite, stipulate, narrow leaves; flowers perfect but incomplete, in clustered or dichotomous cymes; sepals 4-5, more or less united, white or green; petals none; stamens 4-5 with slender filaments; pistil 1, with 1-celled superior ovary, and very short more or less united styles; fruit a utricle or an achene.

- Flowers subtended by bracts; sepals 5 united to the middle; 5 bristles, instead of petals, inserted with 5 stamens on the margin of the calyx-disk; style slender, 2-cleft. On dry, sandy soil. Summer and Fall. - - - Siphonochia
- S. diffusa. Sepals narrowed to the apex, white-margined; style included.
- S. Americana, Sepals dilated at the apex, white-tipped; style exserted.
- S. pauciflora. Sepals dilated, white or broadly white-margined; style included.

55. Petiveriaceae (Phytolaccaceae), *Pokeweed Family*.

Herbs, shrubs or trees with alternate leaves and perfect or dioecious flowers collected in spikes or racemes, terminal or axillary; calyx of 4-5 distinct or partially united sepals; petals none; stamens 4-8, rarely more, distinct or united, with introrse anthers; ovary 1-several celled; stigmas various; fruit a berry or an achene.

- Herbs or shrubs with thickish entire leaves without stipules, flowers in terminal racemes; calyx 8-bracted, 4-5 parted; stamens 5-25, but reduced to staminodia in the pistillate flowers; ovary superior, composed of 5-12 more or less united carpels; styles 5-12 distinct; fruit a berry, - - - Phytolacca
- P. decandra, *Poke-weed*, *Pigeon-berry*. Stem stout from a large poisonous root, branched; racemes somewhat drooping with pink pedicels, calyx white or greenish, berries dark purple filled with a crimson juice, Waste places. Summer and Fall.

56. Allioniaceae (Nyctaginaceae), *Four O'clock Family*.

Herbs or shrubs with alternate or opposite, exstipule-

late, simple leaves, and regular flowers, often subtended by a conspicuous involucre; calyx usually corolla-like, campanulate, trumpet-shaped or tubular; corolla wanting; stamens 1-many; ovary 1-celled, superior, surrounded by the calyx-tube; style and stigma 1, ovary solitary.

Some species belonging to the genera *Boerhaavia* and *Pisonia* are found in South Florida. Cultivated in open ground and in pots are some species of *Bougainvillea*, with the rather inconspicuous flowers in threes, each subtended by a large colored bract.

Bougainvillea glabra, glabrous with rose-red bracts, distinctly veined;—the variety *Sanderiana* has the bracts deeper colored and smaller.

B. spectabilis (*speciosa*), hairy with deep rose to purple bracts;—the variety *lateritia* has brick-red bracts.

57. Basellaceae, *Madeira-vine Family*.

Somewhat succulent vines with alternate, often cordate leaves, and flowers in spike-like racemes; calyx of 2 sepals, corolla of 5 petals; stamens 5, opposite the petals; ovary superior, 1-celled, with 3 distinct styles; fruit a utricle. Cultivated under the name of MADEIRA-VINE; blooming in Fall.

Boussingaultia baselloides, growing in waste places in South Florida and Texas; a glabrous climber with short-petioled, ovate leaves and greenish-white or maroon flowers in slender racemes, the petals longer than the sepals.

Anredera scandens, growing in chapparal of South Texas; like the preceding, but the sepals are broadly-winged at maturity, and the pale petals are not longer than the sepals.

58. Tetragoniaceae, *Carpet-weed Family*.

Herbs, often succulent, sometimes shrubby, spreading; leaves opposite, simple; flowers axillary; calyx of 4-5 sepals, corolla wanting, stamens about 4-5; ovary superior or more or less inferior, 1-many celled, with styles or stigmas as many as there are cells; fruit a capsule.

Sepals 5, with horn-like appendages; stamens perigynous; ovary 3-5 celled, half-inferior; styles 3-5, distinct. On the sea-shore.

Summer to Fall.

Sesuvium, *Sea-Purslane*

S. maritimum (*pentandrum*). Leaves spatulate, short petioled; flowers mostly solitary, sessile; stamens 5.

S. portulacastrum. Leaves oblong, clasping; flowers solitary, short pedicelled; sepals purple within; stamens numerous.

59. Portulacaceae, *Purslane Family*.

Succulent herbs with alternate or opposite leaves

and perfect, regular flowers; calyx of 2 deciduous sepals, corolla of 4-5 or more petals; stamens hypogynous, usually of the same number as the petals; ovary 1-celled, styles and stigmas 2-5; fruit a capsule.

Leaves with scarious or bristle-like stipules; flowers sometimes with an involucre; petals 4-6, fugacious; stamens 8-many; ovary partly or wholly inferior, style 3-8 parted. Portulacae
Cultivated in various colors, pink, red, purple, yellow, orange or white; here and there escaped.

60. Alsiniaceae, Chickweed Family.

Herbs, sometimes shrubby at the base, with opposite, entire leaves; sepals 4-5, persistent; petals 4-5 or none; stamens twice as many as the sepals, or less; ovary 1-celled, rarely 2-5 celled, and styles 2-5; fruit a capsule.

1. Stipules present, forming a bristly mass; flowers in terminal clusters of 3-6; sepals and petals 5 each; stamens and styles 2 each. Pine-land. Spring. *Stipulicida setacea*
1. Stipules wanting; petals 2-cleft or 2-parted. 2
2. Flowers in more or less open cymes; sepals 5 or 4; petals 5 or 4, white; stamens 10 or less, hypogynous; styles 3 or 4; capsules ovoid, Alsine (*Stellaria*), *Chickweed*
 - A. media has petals shorter than sepals. All kind of soil. Throughout the year.
 - A. Baldwinii (*Stellaria prostrata*) has petals longer than sepals. Moist soil. Spring.
2. Flowers in forking cymes; sepals 5 rarely 4, and petals as many, white, notched or cleft above the middle; stamens 10 or less, styles as many as sepals and petals; capsules cylindrical, fluted. Along the roadside. Spring to Fall. *Cerastium vulgatum*, *Moose-ear Chickweed*

61. Caryophyllaceae, Pink Family.

Erect herbs, enlarged at the nodes, with exstipulate, opposite leaves; flowers perfect; 4-5 sepals united into a toothed tube; 4-5 petals with narrow claws; stamens twice as many as the petals; ovary 1-celled, styles 2-5; corolla, stamens and ovary are inserted on a columnar prolongation of the receptacle; fruit a capsule.

1. Styles 2, Dianthus, to which the cultivated *pinks* and *carnations* belong.
2. Styles 3, rarely 4, Silene
 - S. antirrhina, *Sleepy Catchfly*, with sticky patches on the upper internodes; leaves linear to elliptic; calyx-tube delicately ribbed; petals deeply notched at the apex, the tips white or pink; stamens 10. In fields. Early Summer.—A very slender variety with much inflated calyx-tube is the S. linaria.
3. Styles 5, Agrostemma
 - A. Githago, *Corn Cockle*, with forking stem and linear leaves: calyx-tube 10-

ribbed; petals round or notched at the apex, purplish; stamens 10; the whole plant pubescent with long appressed hairs. In fields. Early Summer.

62. Ranunculaceae, Crowfoot Family.

Herbs or climbing shrubs with an acrid sap; leaves simple or compound without stipules, but the base of the petiole often clasping or sheathing; flowers regular or irregular; sepals 3-15, distinct, often colored, generally caducous; petals of about the same number, or wanting; stamens hypogynous, indefinite; ovaries 1-celled, distinct, numerous, rarely solitary; fruit an achene, follicle or berry.

Clematis Catesbyana, a large shrubby vine with opposite biternate leaves and 3-toothed or lobed leaflets; flowers in a leafy panicle, dioecious; sepals 4, white, spreading; petals none; stamens spreading, pistils several, achenes with plumose, persistent styles. In sandy soil, near the coast. Summer.

Viorna (Clematis) crispa, a climbing vine with opposite pinnate leaves and mostly trifoliate leaflets; flowers solitary, nodding; sepals 4 or 5, pale bluish purple, spreading; petals none; stamens erect; pistils many; achenes with the silky persistent styles. Riverbanks. Early Summer.

Viorna (Clematis) reticulata, a large branching vine, the opposite pinnate leaves with 7-9 leathery leaflets, strongly reticulated; flowers nodding, dull purple. In dry sandy soil. Early Summer. Several species of *Clematis* are cultivated as climbers or as erect herbs.

The genus *Paeonia*, *Peony*, has sepals and petals 5 each, ovaries 3-5, flowers solitary, large, white, red or purplish, single or double. Cultivated.

63. Anonaceae, Custard-apple Family.

Shrubs (the *ANONA GLABRA* of South Florida is a tree) usually with strong-scented bark and alternate entire leaves; flowers perfect; sepals 3; petals 6 in two series, the inner smaller or wanting; stamens numerous; ovaries few or many, distinct or cohering; berry-like in fruit.

Leaves deciduous, sepals valvate, petals imbricated; ovaries 3-15 carpelled, tipped by a curved style; berries simple, 1 or more; seeds enclosed in a thin succulent *aril* imbedded in a yellowish pulp.

Asimina, Papaw

- | | | | | | |
|----|--|---|---|---|--|
| a. | Flowers from the axils of present leaves, | - | - | - | b |
| a. | Flowers appearing with or before the leaves, | - | - | - | c |
| b. | Outer petals white or yellowish at maturity. Sandy pine-land. | | | | |
| | Early Summer. | - | - | - | <i>A. angustifolia (A. pygmaea, Dunal)</i> |
| b. | Outer petals dull black-purple at maturity. Dry pine-land. | | | | |
| | Early Summer. | - | - | - | <i>A. pygmaea, Bartr</i> |
| c. | Leaves leathery; young leaves densely tomentose on both sides, flowers yellowish white. Sandy pine-land. Spring. | | | | |
| | | | | | <i>A. speciosa (A. grandiflora)</i> |
| c. | Leaves membranous, flowers purple when mature, | - | - | - | d |

- d. Low shrub with gray to reddish bark; mature outer petals less than twice as long as the sepals. Dry sandy soil. Spring. *A. parviflora*
- d. Tall shrub with dark gray bark; mature outer petals more than twice as long as the sepals. Riverbanks. Spring. - *A. triloba*

64. Magnoliaceae, *Magnolia Family.*

Trees, shrubs or vines, often with aromatic bark; leaves alternate, stipules deciduous or wanting; flowers solitary, usually showy; calyx of 3 or more petaloid deciduous sepals; corolla of 5 or more petals in 2 or more series; stamens 5 to numerous with adnate anthers; ovaries numerous in a whorl or imbricate on an elongated receptacle, 1-celled and 1-2 ovuled; fruit fleshy, baccate or samara-like, distinct or confluent in a cone-like head.

- 1. Leaves entire, sometimes auricled at the base; fruit dehiscent or a berry. - 2
- 1. Leaves 4-lobed, fruit indehiscent, samara-like;—a large tree with deciduous truncate leaves and large deciduous stipules; flowers terminal, bell-shaped, greenish-yellow tinged with orange; sepals 3 reflexed; petals 6 erect; stamens and ovaries numerous; fruit a cone formed by the accrescent 1-2 seeded carpels. Low grounds, and planted. Early summer.

Liriodendron tallipifera, Tulip Tree or White Poplar

- 2. Ovaries in a single whorl, 1-ovuled, becoming follicles in fruit;—evergreen shrubs with alternate exstipulate leaves, and solitary flowers in the axils, sepals 3-6 in 2 series, deciduous; petals in 3-several series, deciduous; stamens numerous in several series; carpels 6-18 in a whorl, - - - *Illicium, Anise-tree*

I. parviflorum. Corolla yellow, petals 6-12. Near the coast. Early Summer.

I. floridanum. Corolla purple, petals 20-30. In swamps. Spring.

- 2. Ovaries imbricated in several series, 2-ovuled, - - - 3
- 3. Shrubby vines with monœcious flowers;—alternate, exstipulate, deciduous leaves, and long-peduncled, mostly crimson flowers in the axils; sepals 5-6 in 2 series, deciduous; petals 5-6 in 1-2 series, deciduous; stamens 5, united, forming a 5-lobed disk; ovaries numerous; fruit a spike of red berries on the much elongated receptacle. In woods. Early Summer.

Schizandra coccinea, Bay-star Vine

- 3. Erect shrubs or trees with perfect flowers;—alternate stipulate leaves; flowers white, solitary, terminal; sepals 3, deciduous; petals 6-12 in 2-4 series; stamens numerous in many series; carpels numerous; fruit a cone of imbricated fleshy follicles tipped by the style or stigma; seeds scarlet, at length suspended by a thread. Our species are evergreens with coriaceous leaves, - *Magnolia*
- M. grandiflora, Magnolia or Laurel Bay.* A tall tree with leaves smooth and glossy above, rusty-pubescent below; flowers large, creamy white, fragrant, changing to brown. In hammocks and planted, Spring and Summer.

M. virginiana (glauca), Sweet Bay. A shrub or slender tree: leaves glabrous

above, glaucous below; flowers white, fragrant. In swamps. Early Summer.

65. Cabombaceae, Water Shield Family.

Aquatic caulescent herbs with the foliage mucilage-coated; the submerged leaves dissected, the floating leaves peltate; the solitary small flowers on long axillary peduncles, with a perianth of two whorls, each 3-, rarely 4-leaved. In ponds and slow-flowing water. Summer.

Cabomba Caroliniana. Flowers white, yellow or pink; stamens 6, pistils 2-4.
Brasenia purpurea (peltata). Flowers dull purple; stamens 12-18, pistils 4-8.

66. Nelumbonaceae, Lotus Family.

Aquatic herbs with long creeping rootstocks and alternate concave peltate leaves on stout petioles; single showy flowers on stout scapes; perianth of numerous parts, hypogynous; stamens numerous; carpels imbedded in a fleshy receptacle; ovaries 1-celled, ovule 1, rarely 2; fruit consisting of several nuts in the accrescent receptacle.

Nelumbo lutea, *Water Cinnamon*. *American Lotus*. Flowers pale-yellow.
N. speciosa (nucifera), *Indian Lotus*. Flowers pink, fragrant. Cultivated.

67. Nymphaeaceae, Water Lily Family.

Aquatic acaulescent herbs with large rootstocks often tuber-bearing; alternate leaves with long petioles, those erect or floating leathery, those submersed membranous; flowers on long scapes; sepals 4-6; petals numerous, passing into stamens or staminodia; stamens numerous with adnate anthers; carpels several, more or less united into a compound ovary; stigmas united into a disk; fruit a leathery, many-seeded berry. Ponds, lakes and river. Summer.

1. Flowers yellow, erect at the ends of the scapes; sepals 5-6 leathery; petals 10-20 narrow; stamens hypogynous.
Nymphaea (Nuphar), *Spatterdock*, *Bonnets*.
N. sagittifolia. Emerged leaves narrow, ovate, more or less sagittate, stigmatic disk with 11-15 lines. Ponds near the coast. Summer.
- N. advena*. Emerged leaves oval, more or less cordate; stigmatic disk with 12-24 lines. Ponds and lakes. Summer.
1. Flowers white, yellow, pink, floating at the ends of the peduncles; sepals 4; petals imbricated in series, numerous; stamens epigynous. - - - *Castalia* (Nymphaea), *Water or Pond-Lily*
C. (N.) odorata. Leaves with slender petioles; flowers 7-15 cm. broad, white or pink, fragrant.

C. reniformis. Leaves with thick petioles; flowers 18-25 cm. broad, white, apple-scented.

C. (N.) Sava. Leaves with slender petioles; flowers 6-10 cm. broad, yellow.

68. Papaveraceae, Poppy Family.

Herbs, rarely shrubby, usually with colored sap; leaves mostly alternate, without stipules, entire or divided; flowers with 2-3 caducous sepals, 4-12 deciduous petals, numerous distinct stamens; ovary 1-celled, with parietal placentae; fruit a capsule, with numerous seeds.

Argemone Mexicana, *Mexican Poppy*. A spiny herb with yellow sap; leaves blotched with white, sessile or clasping, pinnatifid-lobed, bristly; sepals 2-3, hooded or horned; petals 4-8, yellow; fruit spiny. Waste places. Spring to Fall.

69. Brassicaceae (Cruciferae), Mustard Family.

Herbs or shrubby plants with pungent watery sap, alternate exstipulate leaves, and regular hypogynous flowers in spikes, racemes or corymbs; sepals 4, petals 4, with the spreading blades forming a cross; stamens 6, four longer than the other two, or rarely 2 or 4; style simple or wanting; fruit a 2-celled pod, either long (silique), or broad and short (silicle), or separating transversely into joints (loment).

- | | | | | | | |
|--|---|---|---|---|---|----|
| 1. Fruit a silique, | - | - | - | - | - | 2 |
| 1. Fruit a silicle, | - | - | - | - | - | 7 |
| 1. Fruit a loment, | - | - | - | - | - | 11 |
| 2. Silique stalked;—leaves auricled, clasping; flowers white to purple in terminal corymbose racemes; petals with long serrulate claws, ovary stalked, style wanting. Sandhills. Fall. - <i>Warea amplexifolia</i> | | | | | | |
| 2. Silique not stalked, | - | - | - | - | - | 8 |
| 3. Silique flattened parallel to the broad partition, | - | - | - | - | - | 4 |
| 3. Silique terete or 4-angled, | - | - | - | - | - | 6 |
| 4. Valves without veins, flowers white to purple, | - | - | - | - | - | 5 |
| 4. Valves with veins, flowers yellow;—plant grayish-white with pale hairs; leaves with twice pinnatifid blades on short petioles; flowers in racemes or panicles; ovary sessile, style short. Dry soil. Spring and Summer. | | | | | | |

Sophia pinnata (*Sisymbrium canescens*), *Tansy-mustard*

- | | | | | | | |
|---|--|--|--|--|--|--|
| 5. Erect scapose herbs with horizontal rootstocks;—leaves basal, 3-divided, on long petioles; bracts 3-4 in a whorl above the middle of the scape, similar to the leafblades; large flowers in a terminal raceme; ovary sessile, style slender, pod long-beaked. Riverbanks. Spring. - <i>Dentaria laciniosa</i> , <i>Pepper-root</i> | | | | | | |
| 5. Erect or creeping herbs with simple or branching stems;—basal and cauline leaves pinnately divided, the lobes undulate, the terminal one much the largest; flowers in racemes or panicles; ovary sessile, stigma capitate or 2-lobed, pods linear-siliform. Low | | | | | | |

ground. Spring. - - - *Cardamine Pennsylvanica*, *Bitter-cress*

6. Pods not beaked, but pointed with the short style; valves 1-veined;—stems more or less branched at the base, leaves bi-pinnatifid, flowers in terminal or axillary racemes; petals yellow or white, small; stamens 1-6; ovary sessile, stigma 2-lobed, seeds turgid. Damp soil. Spring.

Roripa Walteri (*Nasturtium tanacetifolium*), *Water-cress*

6. Pods prolonged into a conic indehiscent beak; valves 1-6 veined;—stems more or less widely branching, leaves lyrate-pinnatifid, upper leaves entire or toothed; flowers in racemes, petals bright-yellow, twice as long as the sepals. In waste places or cultivated ground.

Brassica

B. nigra, *Black mustard*. Upper leaves sessile.

B. campestris, *Turnip*. Upper leaves clasping.

B. oleracea, with leaves fleshy, repand-toothed or lobed, to which the *cabbage varieties* and *kohlrabi* belong.

7. Silicles flattened contrary to the narrow partition, - - - 8
7. Silicles flattened parallel to the broad partition, - - - 10
8. Seeds solitary in each cell, - - - 9

8. Seeds 10-12 in each cell;—stems simple or branching above; leaves mainly basal with pinnatifid blades; the stem-leaves linear, auricled; flowers in racemes, white; pods triangular. Waste ground. Spring and Summer. *Capsella Bursa-pastoris*, *Shepherd's purse*

9. Cells of the silicles separating from the partition but indehiscent;—prostrate stems branched at the base; leaves pinnately lobed or divided with margined petioles, those on the stem smaller and sometimes sessile; minute flowers, white to purple, in short lateral racemes; stamens often 2-4; ovary sessile, style wanting. Waste places. Spring and Summer.

Coronopus (*Seneciera*), *Wart-cress*

C. (S.) Coronopus. Margins of silicles crested,

C. didymus (*S. pinnatifida*). Margins of silicles not crested.

9. Silicles orbicular or obovate, regularly dehiscent;—stems simple or branched; basal leaves oblanceolate, pinnatifid; stem-leaves narrow; flowers white, in racemes or panicles; corolla small or wanting; stamens mostly 2. Waste places.

Lepidium Virginicum, *Pepper-grass*

10. Silicles elliptic to oblong-elliptic; ovules 2-several in each cell;—caulescent herbs with glabrous scapes, and oblanceolate leaves clothed with stellate pubescence; flowers in racemes; petals white, cuneate, 2-cleft. Waste places. Early Spring.

Draba verna, *Willow grass*

10. Silicles oval to suborbicular; ovules solitary in each cell;—caulescent herbs with ascending or decumbent more or less forked branches, and oblanceolate leaves; small white fragrant flowers in terminal clusters or racemes. Cultivated.

Konigia maritima (*Alyssum odoratum*), *Sweet Alyssum*

11. Loment 2-jointed, short;—fleshy annuals with entire or pinnatifid leaves and white to purple flowers; the joints 1-celled, the upper 1-seeded, the lower 1-2 seeded. In drifting sand along the coast.

Cakile, *Sea-Rocket*

C. Chapmanii (*C. maritima* var. *aqualis*), *Beach-sap*. Upper joint thicker than the lower, both 1-seeded.

11. Loment 2-jointed, elongated;—annuals or biennials from a thick root, with a cluster of lyrate leaves, and with pinkish flowers; pods 2-8 seeded. Cultivated for its root.

Raphanus sativus, *Garden Radish*

An interesting curiosity is the *Anastatica Hierochuntica*, the so-called *Rose of Jericho*.* Leaves obovate, flowers small, white, spicate; fruit a silicle with transverse partition, each cell with 1 seed. After flowering the leaves drop; the branches roll up into a ball, thus protecting the fruit near their tips. When later properly moistened, the branches straighten, the fruits open, and the seeds germinate quickly.

70. Droseraceae, *Sundew Family*.

Low marsh-herbs with alternate mostly radical leaves, circinate in veneration; the foliage covered with glandular hairs exuding a viscid secretion; flowers in spikes or racemes on scapes; sepals 4-8, withering; petals 4-8, white to purple; stamens 4-8, usually 5, anthers ex-torse; ovary 1-celled, many ovuled, superior; styles 2-5, distinct, entire or cleft; fruit a capsule, 1-celled, 2-5 valved. Low pine-land or mossy swamps around ponds and lakes. Spring and Summer.

Drosera, *Sundew*

- | | | | | |
|---|---|---|---|------------------------|
| 1. Leaves with blade and petiole, not filiform, | - | - | - | 2 |
| 1. Leaves filiform;—scapes smooth, erect; flowers bright purple, rarely white, | - | - | - | <i>D. filiformis</i> |
| 2. Blades suborbicular, shorter than the petioles; scapes smooth, erect; flowers white, | - | - | - | <i>D. rotundifolia</i> |
| 2. Blades cuneate, longer than the petioles; scapes glandular-pilose, erect; flowers white, | - | - | - | <i>D. brevifolia</i> |
| 2. Blades spatulate, shorter than the petioles; scapes smooth, | - | - | - | 3 |
| 3. Scapes erect, flowers pink, | - | - | - | <i>D. capillaris</i> |
| 3. Scapes decumbent, flowers white, | - | - | - | <i>D. intermedia</i> |

71. Resedaceae, *Mignonette Family*.

Herbs with alternate, entire or pinnate leaves and minute stipules; flowers small, 4-7 parted, in racemes or spikes, fragrant; stamens 8-many, inserted on the hypogynous, one-sided torus; pistil 1, ripening into a 3-6 horned capsule.

Reseda odorata, *Mignonette*: Spreading annual with spatulate or oblanceolate leaves; flowers yellowish-white in spicate racemes. Cultivated.

72. Sarraceniaceae, *Pitcher-plant Family*.

Acaulescent marsh-herbs; leaves hollow, pitcher- or trumpet-shaped, winged on one side, sticky and pubes-

* A member of the Compositae, the *Asteriscus pygmaeus* is also called *Rose of Jericho*: the involucre closes over the fruits when dry, and retreats when moistened. Both are "Resurrection-plants."

cent inside, with deflexed hairs; scapes erect, naked; flowers showy, solitary; calyx subtended by 3 bracts; sepals 5, persistent; petals 5, deciduous; stamens numerous, with very short filaments and introrse anthers; ovary 3-5 celled, superior; styles united into a 5-angled peltate body, the projections recurved bearing the minute stigmas beneath; fruit a 5-valved capsule.

Low pine-land or sphagnum-swamps. Spring.

Sarracenia, *Pitcher-plant* or *Trumpet-leaf*

- | | | | | | |
|--|---|---|---|---|------------------------------|
| 1. Flowers yellow, | - | - | - | - | 2 |
| 1. Flowers reddish brown, | - | - | - | - | 3 |
| 2. Leaves erect, narrowly winged, upper part yellow; lamina erect, orbicular, pointed, yellow, | - | - | - | - | <i>S. flava</i> |
| 2. Leaves erect, broadly winged, upper part with green and purple veins and white or yellowish blotches; lamina arching over the orifice of the tube, | - | - | - | - | <i>S. minor (varietalis)</i> |
| 3. Leaves decumbent, tube club-shaped, broadly winged, upper part with white spots and purple veins; lamina incurved, inflated, subglobose, almost closing the tube, | - | - | - | - | <i>S. psittacina</i> |
| 3. Leaves ascending, tube inflated, broadly winged, upper part purple-veined; lamina erect, reniform, | - | - | - | - | <i>S. purpurea</i> |

73. Sedaceae (Crassulaceae), *Orpine Family*.

Mostly succulent herbs with exstipulate, thick leaves; flowers perfect or dioecious, in cymes or panicles, or solitary; sepals 4-5, or more or less; corolla of as many petals as there are sepals, sometimes united or wanting; stamens as many as petals or twice as many; ovary of as many carpels as there are sepals, distinct or united below; fruit a follicle.

Bryophyllum planatum (calycinum). A fleshy plant with shrubby base, the opposite leaves sometimes pinnately compound; the perfect flowers in showy panicles; the bladder-like calyx of 4 sepals; the reddish corolla with 4 spreading lobes.—Found in waste places South; but here cultivated for the curious habit of the leaves sprouting when placed on sand or pinned on the wall.

Other cultivated plants of this family belong to the following genera:

Sedum, *Stone-crop*, polypetalous with sepals, petals and carpels 4 or 5, and stamens twice as many.

Sempervivum, *House-leek*, polypetalous, with sepals, petals and carpels 6-20, and stamens twice as many.

Bohea and *Echeveria*, monopetalous, both with 5-parted flowers, but the former with 5, the latter with 10 stamens.

74. Penthoraceae, *Virginia Stonecrop Family*.

Herbs with firm but not fleshy tissues; the erect stems with alternate, thinnish, serrate leaves; flowers greenish in terminal cymes; sepals 5; petals 5, small or want-

ing; stamens 10, hypogynous, carpels 5, united below; fruit a 5-celled capsule with the recurved styles persisting.

Penthorum sedoides, *Ditch Stonewort*. Stems erect with narrow bright green leaves; flowers greenish white, the petals usually wanting. Muddy places. Summer.

75. Escalloniaceae, *Hydrangea* Family.

Shrubs or vines with mostly opposite simple leaves and perfect flowers; calyx 4-10 toothed or parted; petals 4-10; stamens 8-many; ovary of 2-5 united carpels, styles rarely united; fruit a capsule.

1. Erect shrubs, - - - - - 2
1. Shrubby vines, - evergreen, smooth, with elliptic leathery leaves and white flowers in terminal panicles; calyx 7-10 toothed, petals 7-10, stamens 20-30; ovary 5-10 celled, inferior, style thick, stigma 5-10 lobed. Riverbanks. Early Summer. - *Decumaria barbara*
2. Stamens 8-12; - flowers perfect except some on the margin of the corymb or thyrse; calyx with 4-5 toothed border, or with 4-5 lobes in the sterile flowers; petals 4-5; ovary 2-4 celled, inferior; styles 2-4 distinct or slightly united below. Riverbanks. Summer. - *Hydrangea*
- H. arborescens*. Leaves toothed, flowers in a corymb.
- H. quercifolia*. Leaves deeply lobed, flowers in a thyrse.
- H. hortensis*. Cultivated species with nearly all flowers sterile.
2. Stamens 20-40; - flowers white or cream-colored, solitary or in corymbs or racemes; calyx 4-5 parted; petals 4-5; styles mostly 3-5, united at the base. Cultivated. - *Philadelphus coronarius*, *Mach-Orange*
The *P. grandiflorus*, a tall shrub with solitary white flowers, or 2-3 together, is perhaps found on riverbanks.

76. Iteaceae, *Virginia Willow* Family.

Shrubs or trees with erect stems and alternate simple leaves; white flowers in terminal racemes or axillary panicles; calyx 5-cleft; petals 5, with the tips inflexed; stamens 5; ovary superior or nearly so; styles 2, united; fruit an elongated capsule.

Itea virginica, a shrub with pubescent leaves and twigs, and often drooping racemes. In or near swamps. Early Summer.

77. Altingiaceae (*Hamamelidaceae*), *Witch Hazel* Family.

Shrubs or trees with alternate simple leaves; perianth of 1 or 2 series, or wanting; stamens twice as many as the petals and half of them sterile, or numerous and the petals wanting; filaments distinct and anthers introrse; ovary of 2 partially united carpels; styles 2, distinct; fruit a capsule.

1. Perianth wanting;—a tall tree with palmately-lobed, long-petioled leaves and caducous stipules; flowers monœcious; the staminate heads in terminal racemes, sessile; the pistillate heads solitary on long axillary peduncles; capsules with the horn-like styles united into a head; seeds 1 or 2, winged. In low woods or planted. Spring. - *Liquidambar styraciflua*, *Sweet Gum*, *Bilsted*
1. Perianth of 1-2 series, - - - - - 2
2. Petals wanting;—low monœcious shrubs with the white fragrant flowers appearing before the leathery cordate leaves, and collected into terminal bracted spikes; calyx truncate or obscurely 5-7 toothed; stamens about 24 in one row; ovary 2-3 celled, partly inferior; styles 2-3; capsule 2-3 lobed, with one bony seed in each cell. Low pine or oak land. Spring.
Fothergilla parviflora, *Dwarf Alder*
3. Petals 4, stamens 4, staminodia 4;—shrubs or small trees with flexuous branches, slightly leathery leaves, and deciduous stipules; flowers in terminal 3-flowered clusters on short, bracted, lateral peduncles; calyx 2-3 bracted, 4-parted; the 4 petals linear, bright yellow; stamens and staminodia alternating; ovary of 2 carpels, each 1-celled, 1-2 ovuled; styles 2; capsule 2-beaked; seeds black, shining. Flowers when leaves are falling, fruit the following Summer. Low woods. - *Hamamelis Virginiana*, *Witch-hazel*, *Witch-elm*

78. Platanaceae, *Plane-tree Family*.

Large trees with alternate, palmately-lobed leaves and thin sheathing stipules; flowers monœcious in dense peduncled heads, solitary or collected into spikes or racemes; staminate heads red, calyx and corolla of 3-6 scales, stamens 3-6, anthers elongated with long connectives; pistillate heads green, calyx and corolla 3-6, usually 4; carpels as many as sepals, 1-celled, hairy; style awl-shaped, ovules 1-2; fruit an achene, surrounded by rigid hairs and crowded in dense globose heads.

Platanus occidentalis, *Plane-tree*, *Button-ball* (wrongly called *Sycamore*). Bark thin, white; leaves round-cordate, angularly lobed and toothed, woolly-pubescent when young, but soon smooth; heads solitary, pendulous. River-banks and planted. Spring.

79. Rosaceae, *Rose Family*.

Herbs, shrubs, vines or trees, mostly with alternate, stipulate leaves, and perfect flowers; calyx usually of 5 more or less united sepals accompanied by bracts; corolla of the same number of distinct petals, inserted with the stamens on the calyx-tube; corolla rarely wanting; stamens in one or more series, filaments distinct; carpels 1-many on a depressed or elongated receptacle; ovules 1, 2, or several in each cavity; fruit various.

1. Ovaries superior, fruit not enclosed in the calyx-tube, - - - - - 2

1. Ovaries inferior, fruit enclosed in the calyx-tube, - - - - - 4
2. Calyx bractless; shrubs, - - - - - 8
2. Calyx with 5 bractlets; herbs:—acaulescent, often with stolons; leaves long-petioled, 3-foliate; flowers in terminal cymes, calyx 5-parted, petals 5 white, stamens about 20 in 3 series, pistils many, fruit consisting of numerous achenes imbedded in or seated on the more or less elongated fleshy torus. Cultivated. *Fragaria, Strawberry*
3. Pistils rarely more than 5, maturing into 2-4 seeded follicles;—flowers white or rose, in terminal or axillary umbels, corymbs or panicles; calyx 4-5 cleft, petals 4-5, stamens 20-60, follicles 5. Cultivated. Early Spring. - - - - - *Spiraea, Bridal Wreath*
3. Pistils numerous, maturing into 1-2 seeded drupelets crowded on a convex or conic receptacle;—shrubs with erect or trailing stems, bristly or prickly; leaves lobed or compound, with stipules adnate to the petioles; calyx 5, petals 5, stamens numerous; drupelets smooth - - - - - *Rubus*
 - a. Petals erect; fruit deciduous from a dry receptacle, - - - - - (*Raspberries*)
 - a. Petals spreading, fruit persistent on a fleshy receptacle, (*Blackberries*): b
 - b. Stem erect, ascending or recurved, - - - - - c
 - b. Stem trailing, creeping or decumbent;—shrub with prickles or bristles, the flowering branches erect; leaves 3-5 foliate, leaflets thickish; flowers large, usually solitary, white; fruit oblong, black. Sandy soil. Spring. - - - - - *R. trivialis*
 - c. Leaves 3-foliate or on the shoots 5-foliate; leaflets leathery, densely tomentose beneath, with stout prickly petioles; flowers few in terminal corymbs, white; fruit oblong, black. Sandy soil. Spring. - - - - - *R. cuneifolius*
 - c. Leaves 3-5 foliate, leaflets thickish, pubescent beneath; shrub with recurved prickles; flowers in terminal or axillary racemes, white or pink; fruit globose-oval, black; leaves and fruit larger than in the preceding species. Moist thickets. Spring. - - - - - *R. nigrobaccus (villosus)*
4. Achenes 1-2, included in the hardened bristly calyx-tube;—erect pubescent herbs, stipules leaf-like, blades odd-pinnate with small leaflets between the larger ones; flowers small, yellow, in long wandlike racemes; calyx 5-cleft, petals 5, stamens 5-15 in one series, pistils 2, stigmas 2-lobed, - - - - - *Agrimonia, Agrimony*
- A. Incisa. Leaflets 7-11, blades and stipules coarsely incised; stamens 5. Dry pine woods. Summer.
4. Achenes numerous within the fleshy calyx;—prickly shrubs with erect, trailing or climbing stems; leaves generally odd-pinnate, stipules adnate; flowers solitary or in corymbs, white, pink, yellow, or red; calyx 5-cleft, petals usually 5; stamens numerous, inserted with the petals on the throat of the calyx; pistils numerous, - - - - - *Rosa*
 - a. Styles cohering, exserted;—a climbing or reclining shrub, leaflets 3-5; flowers showy, red, few in terminal corymbs. Borders of swamps. Summer. - - - - - *R. setigera, Prairie Rose, Climbing Rose*
 - R. multiflora, Japan Rose*, leaflets 5-9, is cultivated with varieties as *Russell's Rambler, Seven Sisters*, etc.
 - a. Styles distinct, included, - - - - - b
 - b. Sepals persistent;—an evergreen shrub with spreading stems and branches, and recurved prickles; leaflets 5-11, stipules

bristle-fringed, caducous; flowers showy, white or creamy or yellow, solitary or few together with large bracts under the tomentose calyx. Planted in hedges and escaped. Summer,

R. bracteata, *Macartney Rose*

- b. Sepals deciduous,
- c. Leaves deciduous;—a bushy shrub with stout prickles; leaflets 5-9, membranous, glaucous beneath; flowers red to white, in corymbs, rarely solitary. In swampy places. Summer.

R. Carolina, *Swamp Rose*

- c. Leaves evergreen;—stems climbing and trailing, with short-recurved prickles; leaflets mostly 3; flowers solitary, white. Planted along roadsides. Spring. *R. laevigata*, *Cherokee Rose*

For the numerous species and hybrids see Bailey's *Cyclopedia*, art. *Rose*.

80. *Calycanthaceae*, *Strawberry Shrub Family*.

Aromatic shrubs with opposite, exstipulate leaves, usually entire; flowers terminal, purplish or yellow, fragrant; sepals and petals numerous and alike, in many series inserted on the edge of the receptacle; stamens numerous inserted on the receptacle, the outer 5-12 fertile, the inner reduced to staminodia; anthers adnate, extrorse; carpels many, 1-seeded, distinct, included in the fleshy receptacle; fruit a capsule including few or many achenes.

Batneria florida (*Calycanthus floridus*). *Sweet-scented Shrub*. Twigs and leaves pubescent, flowers short-peduncled, dull purple, fragrant. Cultivated. Late Spring.

81. *Malaceae*, (*Pomaceae*), *Apple Family*.

Trees and shrubs with alternate, pinnate or pinnately veined leaves and small deciduous stipules; flowers regular, solitary or in racemes or cymes; calyx 5-parted, adnate to the ovary; petals 5; stamens mostly numerous, distinct; carpels 1-5 wholly or partly united; ovary 1-5 celled with ovules 1-2 in each cell; styles 1-5; fruit a pome, consisting of the thickened calyx-tube enclosing the bony, membranous or leathery carpels.

- 1. Carpels membranous or leathery at maturity,

- 1. Carpels bony at maturity, 1-seeded, or if 2-seeded dissimilar;—shrubs or small trees, mostly with spines or thorns; white or pink flowers in terminal cymes or corymbs; stamens 5-25 in 1-8 series, with colored anthers; styles 1-5 distinct. Spring or early Summer.

Crataegus, *Hawthorn*

- a. Corymbs compound, many-flowered,

- a. Corymbs simple, 2-5 flowered,

- b. Leaves spatulate or oblanceolate, narrowed or cuneate at the base; mature fruit bright scarlet, 4-6 mm. Riverbanks.

C. spathulata, *Mitchell*

- b. Leaves ovate-lanceolate, elliptic or obovate, contracted or on the shoots rounded at the base; twigs very spiny; mature fruit red to orange-red, 5-8 mm. Riverbanks. - *C. paludosa*, Sarg.
 - b. Leaves thin, oval or elliptic, acute at both ends, on slender petioles; styles 5;—a small tree with ash-colored branches, spines stout or wanting; mature fruit red, 5-8 mm. Riverbanks and borders of ponds and lakes. - *C. arborescens*, Ell.
 - c. Leaves oval to nearly orbicular, on the shoots ovate, with abruptly contracted bases; mature fruit red, 8-12 mm. Riverbanks. - *C. maleoides*, Sarg.
 - c. Leaves spatulate or cuneiform, on the shoots ovate or obovate with cuneate or narrowed bases; mature fruit orange-red, 8-10 mm. Swampy woods. - *C. luculenta*, Sarg.
 - c. Leaves obovate, rounded at the apex, contracted at the base; petioles margined; stamens with yellowish-white anthers; a large shrub; mature fruit red, 10-13 mm. Roadsides. - *C. Compitalis*, Beadle
 - 2. Petals roundish; cells of ovary as many as the styles, 2-ovuled, - - - 3
 - 2. Petals linear to linear-spatulate; cells of ovary twice as many as the styles, 1-ovuled;—flowers white in racemes; stamens 8; styles 2-5, connate; fruit berry-like, 4-10 celled, red or purple. Early Spring. - *Amelanchier*, *May-cherry*, *June-berry*, *Service-berry*
 - A. *Canadensis*. Tree with smooth leaves, acute or acuminate at the apex, rounded or cordate at the base, racemes spreading or drooping. In dry woodland or planted.
 - A. *Botryaplum*. Shrub or small tree with woolly leaves, especially when young, rounded or pointed at the apex, and rounded to subcordate at the base; racemes short. In wet soil.
 - 3. Trees; leaves simple and glandless, - - - 4
 - 3. Shrubs; leaves simple, glandular on the upper side of the midvein;—flowers white to purplish, small, in terminal compound cymes; styles 3-5, united at the base. In swamps and low woods. Spring. *Aronia*, *Choke-berry*
 - A. *arbutifolia*. Cymes and lower surfaces of the leaves woolly; fruit red.
 - A. *atropurpurea*. Cymes and lower surfaces of the leaves woolly; fruit purple-black.
 - A. *nigra*. Cymes and leaves smooth; fruit black or purple-black.
 - 4. Styles 5, distinct;—tree with white flowers in terminal simple cymes; fruit with grit-cells. Cultivated to some extent. - *Pyrus*, *Pear*
 - 4. Styles 2-5, mostly united at the base;—tree with pinkish flowers, in terminal simple cymes; fruit without grit-cells. Cultivated to a small extent. - *Malus*, *Apple*
 - M. *angustifolia*, *Crab-apple*. Leaves lanceolate, short petioled; styles almost distinct; flowers rose-color, fragrant; fruit very sour. In thickets. Early Spring.
- Allied with this family is the *Eriobotrya* (*Photinia*) *Japonica*, *Loquat* or *Japan Plum*, a small tree with large white fragrant flowers in a terminal woolly cluster; calyx 5-toothed, thick; petals 3, crenulate; ovary 3-5 celled, each cell 1-ovuled; fruit a yellow pome with large seeds. Late Summer and Fall. Cultivated for ornament more than for fruit.

82. Amygdalaceae, Plum Family.

Shrubs or trees with alternate simple leaves and de-

eiduous stipules; flowers in clusters, corymbs or racemes; calyx 5-parted, free from the ovary; corolla of 5 distinct petals together with numerous stamens inserted on the calyx-tube; carpels 1, rarely 2-3; ovary 1-celled, 2-ovuled; style 1; fruit a drupe, seed solitary.

1. Style arising from the base of the ovary;—leaves leathery, glossy;
flowers small, white or greenish; drupe pulpy. - - - *Chrysobalanus*
C. oblongifolius, *Gopher-apple*, *Ground-oak*. A low shrub in wide patches;
flowers whitish. Dry sandy pine-land. May.
1. Style terminal, - - - - - 2
2. Leaves deciduous; flowers in clusters or terminal racemes; drupe
mostly pulpy. - - - - - 3
2. Evergreens; flowers in axillary racemes shorter than the leaves;
drupe dry;—leaves leathery, glossy; flowers small, white, - *Laurocerasus*
L. *Caroliniana*, *Cherry-Laurel*. A tree or shrub; drupes black, lustrous.
Riverbanks or planted as trees or in hedges. Early Spring.
3. Flowers sessile or nearly so; endocarp (stone) wrinkled and pitted;—
shrubs or trees with the flowers appearing before the leaves;
corolla pink or white, - - - - - *Amygdalus*
A. *Persica*, *Peach*. Foliage and flowers fragrant, petals and usually the flaments pink; drupe soft-velvety, stone bony. Waste places, and planted
in several varieties as *Angel*, *Hall*, *Peen-to*, etc.
3. Flowers peduncled; stone smooth, - - - - - 4
4. Flowers in lateral corymbs or clusters, appearing before the leaves;—
shrubs or trees, sometimes thorny; flowers white or pink; drupe
pulpy; stone bony. Spring. - - - - - *Prunus*
P. *Americana*, *Wild Plum*. Small tree with thick, sharply serrate leaves;
flowers in lateral umbel-like clusters; sepals entire; drupe subglobose,
reddish, sometimes with a slight bloom. In woods.
P. *umbellata*, *Hog Plum*, *Black Stoe*, *Bullace Plum*. Small tree or shrub with
thinnish, serrate leaves; sepals pubescent inside; drupe globose, nearly
black beneath the bloom. Low pine-land or hammocks.
P. *angustifolia*, *Chickasaw Plum*. Somewhat spiny shrub; leaves thinnish,
serrulate; sepals ciliate with glandular hairs; drupe oval-globose, red or
yellowish, with a slight bloom. Thickets.
4. Flowers in terminal racemes, appearing after the leaves,—shrubs or
trees, flowers white; drupe pulpy; stone bony. - - - - - *Padus*
P. *serotina*, *Wild Cherry*, *Black Cherry*. Tree with firm, glabrous leaves,
finely serrate, with the teeth callous and appressed; drupe purplish black.
Woods and planted. Spring.

To the cultivated species of this family, though not often planted here, belong the *Cherries* (*Cerasus*), *Apricots* (*Armeniaca*) and *Almonds* (*Amygdalus*).

88. Mimosaceae, *Mimosa* Family.

Herbs, trees and shrubs with erect or prostrate stems, and alternate mostly 2-3 pinnate leaves; stipules various, sometimes spine-like; flowers perfect or polygamous; sepals and petals 8-6, partially united or the latter dis-

inct; stamens as many or twice as many as there are petals, or more, usually exserted, distinct or monadelphous; ovary superior, 1-celled; style 1; fruit a legume.

1. Stamens numerous, filaments distinct or the inner ones slightly united at the base, - - - - - 2
1. Stamens as many or twice as many as the petals, - - - - - 3
2. Petals distinct or united below the middle; legumes flat, dry;—ornamental shrubs or trees with the leaves 2-pinnate or reduced to phyllodes; the yellow flowers in spikes or heads on axillary peduncles; calyx 4-5 lobed or wanting; petals 4-5, - - - - - *Acacia*
2. Petals united into a tubular-funnel-shaped corolla; legumes cylindric, pulpy within;—ornamental shrubs or small trees, spiny, with 2-pinnate leaves; the yellow flowers in globular spikes; calyx and corolla shallowly 5-lobed, - *Vachellia (Acacia) Farnesiana, Opefona*
3. Pods 4-angled or with a broad margin, not jointed, beaked;—herbs or low shrubs with prostrate prickly stems; the sensitive leaves 2-pinnate with setaceous stipels; purple flowers in axillary head-like spikes; calyx and corolla 4-5 lobed, stamens 8-10. Dry sandy soil. Summer. - *Morongia (Schrunkia), Sensitive Brier*
M. uncinata, with the leaflets prominently veined.
M. angustata, with the leaflets scarcely veined.
3. Pods flat, jointed, not beaked;—mostly prickly plants with sensitive, 2-pinnate leaves; the white or pink flowers in axillary spikes; calyx and corolla 4-5 lobed, the former minute; stamens 4-10, - *Mimosa, Sensitive Plant*
M. strigillosa, prostrate herb with long petioles and peduncles, flowers pink. Riverbanks. Summer.

84. *Cassiacae, Senna Family.*

Trees, shrubs and herbs with alternate, often stipulate leaves and mostly perfect flowers; calyx of 5 more or less united sepals; corolla of 5 petals, the upper one enclosed by the lateral ones in the bud; stamens 10 or less, with distinct or united filaments; ovary 1-celled, style 1, ovules 1-many; fruit a legume.

1. Leaves entire or 2-lobed, the petiole prolonged into a short awn between the leaves;—a shrub or small tree cultivated for its large, almost regular, very showy flowers, - - - *Bauhinia, Mountain Ebony*
B. purpurea has red petals, one of them streaked with white.
B. variegata has rose-colored petals, the lowest one larger and strongly marked with crimson; calyx spathe-like.
B. acuminata has white flowers.—All flower in Winter and Spring.
1. Leaves even-pinnate, - - - - - 2
1. Leaves bi-pinnate, - - - - - 3
2. Calyx-lobes obtuse, corolla almost regular;—petioles with 1-several glands, stipules deciduous; the yellow flowers in terminal or axillary panicles or racemes; stamens 5 or 10, all normal or 8 of them reduced to staminodia; filaments unequal, - *Cassia, Senna*
C. occidentalis. A stout branching annual; stipules filiform, caducous; leaf-

- lets 8-12, with 2 petiolar glands between the lower pair; flowers large; legume linear. Waste places. Summer.
2. Calyx-lobes acuminate, corolla irregular;—petioles bearing 1, rarely 2 glands near the base; stipules persistent; the yellow flowers solitary or clustered; stamens 10, or some of them reduced to staminodia; filaments short, - - - *Chamaecrista. Sensitive Pea*
- C. *Chamaecristoides*. Stems low and spreading, somewhat pubescent; leaflets 12-24; petiolar gland small, round; flowers solitary in filiform peduncles; calyx-lobes linear, ciliate; petals large. Dry ground. Summer.
- C. *aspera*. Stems tall, erect, hispid with fulvous hairs; leaflets 40-50; petiolar gland slender; peduncles 2-3 flowered, very short. Waste ground. Summer.
3. Flowers in racemes or panicles; calyx-lobes 5, petaloid, the lower lobe overlapping the other ones; petals 5, unequal, highly colored; stamens 10, with distinct filaments, pods narrow, nearly straight. Cultivated. - - - *Poinciana*
- P. (*Caesalpinia*) *pulcherrima, Dwarf Poinciana*. Shrub with few, scattered prickles and delicate leaves, the larger with 6-18 pinnae and relatively few leaflets; flowers terminal, petals crisped, orange-red, rarely yellow; stamens and style red, exserted. Plants from South Florida, somewhat hardy here.—The species *C. Japonica* with flowers in panicle-like clusters, canary-yellow, stamens red, is much hardier.
- P. *regia, Royal Poinciana, Peacock flower*. A tree of rapid growth with wide-spreading top; leaves with 10-20 pairs of pinnae; flowers large, bright-scarlet, upper petal striped with yellow. South Florida.
3. Petioles very short, with 2-4 branches carrying many pairs of leaflets; flowers in slender axillary racemes, bright yellow; the largest of the 5 petals with a gland at its base; stamens 10, with distinct filaments; pods narrow, torulose, - - - *Parkinsonia*
- P. *sculeata, Jerusalem Thorn*. Shrub or small tree, with thorny branches; racemes slender, solitary or fascioled. Cultivated,

85. Fabaceae (Papilionaceae), *Pea Family*.

Herbs, shrubs, vines or trees with alternate, stipulate, mostly compound leaves and hypogynous or perigynous flowers, solitary or in inflorescences; calyx 4 or 5 lobed, sometimes 2-lipped; corolla of 5 petals viz: an upper one surrounding the rest in the bud, called VEXILLUM or STANDARD, 2 lateral ones, WINGS, and 2 united or cohering forming the KEEL (wings and keel are rarely wanting, as in genus *Amorpha*); stamens 10, sometimes 9, rarely 5; filaments monadelphous, diadelphous or distinct; ovary superior, 1-celled or 2-several celled by cross-partitions; fruit a pod, legume or loment.

- | | | | |
|---|---|---|---|
| 1. Stamens 10, distinct, | - | - | 2 |
| 1. Stamens 10 or fewer, monadelphous or diadelphous, | - | - | 3 |
| 2. Leaves pinnate, pods moniliform;—shrubs or trees; leaves odd-pinnate with minute deciduous stipules; white, yellow or violet | | | |

- flowers in terminal or axillary racemes or panicles, - - - *Sophora*
S. Japonica, *Pagoda-tree*. An ornamental deciduous tree, flowers white or
cream-colored.
2. Leaves 3-foliate or simple, pods inflated;—erect herbs with flowers in
terminal or lateral racemes, or axillary; calyx-lobes nearly
equal or the upper two united. - - - *Baptisia*, *Wild Indigo*
B. simplicifolia. Leaves simple, sessile; flowers in racemes, yellow; calyx-
lobes as long as tube. Dry pine-land. Summer.
B. calycosa. Leaves trifoliate; flowers in racemes, yellow; calyx-lobes spatu-
late, longer than the tube. Sandy pine-land. Spring.
B. lanceolata. Leaves trifoliate, leaflets oblanceolate; flowers axillary, yel-
low, Dry pine-land. Spring.
B. elliptica. Leaves trifoliate, leaflets variable, the terminal broadest at the
middle; flowers axillary or in racemes, yellow. Dry pine-land. Spring.
B. leucantha. Leaves trifoliate, leaflets oblong to ovate; flowers in racemes,
white. Riverbanks. Spring and Summer.
3. Leaves without tendrils, - - - - - 4
3. Leaves with tendrils; style round-filiform;—trailing or climbing
herbs with even-pinnate leaves and flowers in racemes; vexil-
lam broad and wings cohering to the middle of the shorter keel.
Vicia, *Vetch*
V. acutifolia. Leaflets 2-6, linear; racemes 4-8 flowered; flowers pale-blue,
vexillum tipped with purple. Sandy soil, near the coast. Spring to Fall.
V. Florida. Leaflets 4-8, oblong; peduncles 1-2 flowered; flowers white or
pale-blue. Sandy soil. Spring to Fall.
- Two cultivated species belong here:
Pisum sativum, *Common Pea*. Leaflets usually 4, peduncles several
flowered; style dilated above and grooved on the back.
Lathyrus odoratus, *Sweet Pea*. Leaflets 2, peduncles 2-flowered, large,
fragrant; style flat, dilated above, ascending.
4. Herbs, shrubs, trees or woody vines, - - - - - 5
4. Herbs or herbaceous vines, - - - - - 24
5. Fruit 2-valved or indehiscent, not a loment, - - - - - 6
5. Fruit a loment, - - - - - 20
6. Foliage not glandular-dotted, - - - - - 7
6. Foliage glandular-dotted, - - - - - 17
7. Stamens monadelphous, anthers of two kinds, - - - - - 8
7. Stamens diadelphous at least beyond the middle, anthers all alike.
(See genera *Indigofera* and *Crocea*), - - - - - 9
8. Upper stipules decurrent; calyx 5-lobed; pods inflated;—low herbs
with simple leaves; flowers in racemes or solitary; seeds loose
in the mature pod, - - - - - *Crotalaria*, *Rattle-box*
C. sagittalis. Pubescent, stipules broad, flowers yellow. Dry soil. Spring
to Fall.
C. Parshii. Slightly pubescent, stipules narrow, upper and lower leaves dif-
ferent, flowers yellow. Sandy soil. Spring to Fall.
8. Stipules not decurrent; calyx 2-lipped; pods flat;—ascending or proe-
strate herbs with palmately 5-15 foliate, or simple, rarely 3-foliate
leaves, and flowers in terminal racemes, - - - - - *Lupinus*, *Lupine*
L. diffusus. Densely silky; leaves simple, mucronate; flowers blue with or
without a purple blotch on the vexillum. Dry pine-land. Spring.
L. villosus. Densely villous; leaves simple, acute; flowers pale-red with a
purple blotch on the vexillum. Dry pine-land. Spring.

9. Leaves trifoliate. - - - - - 10
 9. Leaves pinnate, pods dehiscent, - - - - - 12
 10. Pods straight, - - - - - 11
 10. Pods curved or coiled;—herbaceous or shrubby, erect or prostrate;
 flowers in elongated or head-like peduncled racemes; calyx-
 lobes nearly equal, slender, - - - - - *Medicago, Medic*
M. lupulina. Prostrate; flowers yellow; pod 1-seeded, smooth. Waste places.
M. sativa, Lucerne clover, Alfalfa. Erect; leaflets oblong-lanceolate or
 obovate, dentate towards the apex; flowers purple to blue; pods pubes-
 cent. Cultivated. Spring to Fall.
 11. Valves leathery;—erect herbs with fragrant foliage; flowers in nar-
 row axillary racemes; calyx-lobes nearly equal; pods short and
 thick, - - - - - *Medicago, Sweet Clover*
M. officinalis. Flowers yellow; vexillum and wings of about equal length.
M. alba. Flowers white; vexillum longer than the wings.
 11. Valves membranous;—herbs with erect or creeping stems; flowers
 mostly in heads; calyx-lobes slender and equal, or broad and
 the upper two united; pod flat or terete, and included in the
 persistent corolla, - - - - - *Trifolium, Clover*
T. arvense, Rabbit-foot clover. Erect; lanuginose; leaflets linear to oblance-
 olate; calyx-teeth subulate; corolla whitish, shorter than the calyx.
 Along roadsides. Summer.
T. pratense, Red clover. Erect or ascending; pubescent; leaflets oblong to
 oval or ovate, often blotched; calyx villous, lobes filiform; corolla red,
 purple or white. Cultivated grounds. Spring to Fall.
T. reflexum, Buffalo clover. Ascending; villous or downy; leaflets round-
 ish; calyx smooth, lobes much longer than the very short tube; vexil-
 lum red or purple, longer than the white keel and wings. Waste places.
 Spring.
T. Carolinianum, Carolina clover. Ascending or decumbent, sometimes
 erect; pubescent; leaflets obovate or cuneate; calyx pilose, lobes lanceo-
 late; corolla white, pink or tinged with purple; vexillum longer than
 wings. Waste places. Spring to Fall.
T. repens, White Clover. Prostrate; smooth; leaflets obovate or roundish;
 calyx smooth, lobes short; corolla white, vexillum much longer than
 wings and keel. Roadside. Spring to Winter.
 12. Leaves odd-pinnate, - - - - - 13
 12. Leaves even-pinnate, - - - - - 15
 13. Herbs or shrubs, - - - - - 14
 13. Woody vines;—blue, purplish or white flowers in terminal racemes;
 calyx slightly 2-lipped, the upper two lobes partially united;
 vexillum broad, abruptly contracted into a claw with two ap-
 pendages at the top. Ornamental vines. Spring. - *Bradleya (Wistaria)*
 14. Pods 4-angled or very turgid;—flowers in axillary spikes or racemes;
 calyx-lobes nearly equal; stamens monadelphous or partially dis-
 tinct. - - - - - *Indigofera, Indigo-plant*
I. Caroliniana. Erect, tall; racemes longer than the subtending leaf-like
 bracts; corolla yellowish-brown. Dry pine-land. Spring and Summer.
I. tinctoria. Erect; racemes shorter than the leaf-like bracts; corolla rose
 or purplish; pods torulose. Waste places; formerly cultivated. Summer.
 14. Pods turgid with prominent upper suture, obovate in cross-section;
 herbs. In sandy pine-land. Spring. - - - *Tium (Astragalus)*

- T. intensum* (*A. villosus*). Ascending or prostrate, villous; leaflets 9-15, obovate or roundish; racemes ovoid, short; calyx pubescent; corolla dull yellow; pods villous.
- T. obcordatum* (*A. obcordatus*). Ascending or prostrate, glabrous; leaflets 15-25, obcordate; racemes ovoid to cylindric, short; calyx somewhat pubescent; corolla pale-purple or blue, pods crescent-shaped, glabrous.
- T. apilorum* (*A. glaber*). Erect, silky when young, smooth in age; leaflets 15-25, linear; racemes few-flowered; calyx silky; corolla white; pods transversely wrinkled, glabrous.
14. Pods flattened;—herbs or shrubs with long tough roots; flowers in racemes; calyx-lobes nearly equal, or the upper two united and shorter; stamens diadelphous or monadelphous. In sandy soil and pine-land. Summer. - *Cracca* (*Tephrosia*), *Cat-gut*, *Goat's Rue*
- C. Virginiana*. Woody at the base, erect or ascending; leaflets 11-12, oblong or elliptic; corolla cream-colored, tinged with purple or pink; pods villous.
- C. ambigua*. Trailing or assurgent, forked-branching; leaflets 7-11, linear-oblong to obovate, often with reddish veins beneath; petioles longer than the leaflets; corolla white or purple.
- C. spicata*. Decumbent or ascending; foliage villous; leaflets 5-15, oval or oblong, mucronate, the terminal ones obovate; calyx villous; corolla white, turning purple in fading.
- C. hispida*. Decumbent or assurgent, forked-branching; leaflets 7-13, elliptic to linear-oblong, often with purplish veins beneath; petioles shorter than the leaflets; corolla white turning purplish.
15. Pods wingless, more or less compressed, - - - 16
15. Pods 4-sided and 4-winged;—flowers in axillary racemes, shorter than the leaves; calyx with minute lobes; vexillum broad; wings and keel almost alike, - - - *Desbentonis*
- D. punicea*. A small ornamental tree with orange-red or scarlet flowers. Summer.
16. Pods several-seeded, with thick margins;—tall herbs with flowers in axillary racemes; calyx 2-bracted, equally 5-toothed; vexillum broad, wings curved, keel blunt, - - - *Sesbania*
- S. macrocarpa*. Leaflets 20-70, oblong; racemes shorter than the leaves; calyx membranous; corolla yellow, spotted with purple, Moist soil. Summer and Fall.
16. Pods 2-seeded, with thin margins;—tall herbs with flowers in axillary racemes; calyx 5-toothed; vexillum reniform, keel-petals coherent above the middle; pod with outer and inner walls distinct, - - - *Glottidium*
- G. vesicarium*. Leaflets 25-50, mucronate; racemes shorter than the leaves; corolla yellow.—A variety, *atrorubrum*, has black-purple corolla.
17. Leaves palmately 3-7 foliate or pinnately 8-foliate;—herbs or shrubs with flowers in axillary peduncled spikes or racemes; calyx-lobes equal or the lower longer; vexillum broad, keel short; pod broad. Sandy pine-land. Spring and Summer. - - - *Psoralea*
- P. Lupinellus*. Leaves palmately 5-7 foliate, leaflets linear; racemes shorter than the peduncles; corolla blue or violet; pods lunate with curved beak.
- P. canescens*. Leaflets 3, or on the upper leaves 1, oval to roundish; racemes longer than the leaves; calyx-tube inflated on the upper side; corolla blue, turning greenish; pods with straight beak.

- P. pedunculata* (mellilotoides). Leaflets 3, lanceolate; peduncles 2-3 times as long as the leaves and longer than the racemes; upper calyx-lobes lanceolate; corolla purplish; pods roundish.
17. Leaves pinnately 5-many foliate, - - - - - 18
18. Stamens 10, corolla consisting of a single petal (vexillum);—shrubs with small flowers in spike-like racemes; calyx 5-lobed; stamens united at the base, exserted, - - - - - *Amorpha*
A. herbacea. Grayish-pubescent low shrub with purple branches; leaflets 11-37, elliptic or oblong; racemes clustered; calyx-lobes short, unequal; vexillum broadly-spatulate, surrounding the stamens, white or bluish to violet-purple; pod small, with a slender nearly erect beak, glandular, Sandy soil. Spring.
- A. fruticosa*. Young plants tomentose; leaflets 11-25, oval or oblong; racemes clustered; calyx-lobes unequal; vexillum round-ovate, blue; pod curved, marked with large glands. Riverbanks. Early Summer.
18. Stamens 5, monadelphous, - - - - - 19
19. Calyx-lobes shorter than the tube; spikes without involucre;—vexillum broad; wings and keel similar, - - - - - *Petalostemon*, *Prairie-clover*
P. carneus. Glabrous, much-branched herbs; leaflets 5-7, linear; corolla white or pink. Dry sandy soil. Summer.
19. Calyx-lobes longer than the tube; spikes with involucre;—flowers in corymbose spikes; calyx pubescent, lobes bristle-like; vexillum broad; wings and keel similar, their claws adnate to the stamen-tube, - - - - - *Kuhnlistera*
K. pinnata (*Petalostemon corymbosum*). Leaflets 3-15, linear; spikes resembling heads; corolla white. Dry sandy soil. Summer.
20. Corolla yellow, - - - - - 21
20. Corolla not yellow, - - - - - 22
21. Flowers of two kinds; one kind complete but sterile, the other without calyx, corolla and stamens, but fertile; leaves odd-pinnate, - - - - - 22
21. Flowers perfect; leaves 4-foliate;—erect or prostrate herbs; flowers in conspicuously bracted spikes; calyx 2-lipped, 5-cleft or toothed; claw or vexillum broad; wings oblique, shorter than the keel; stamens monadelphous, anthers alternately longer and attached at the base, and shorter and versatile; style filiform; loment flat, several-jointed, - - - - - *Zornia*
Z. bracteata (tetraphylla). Peduncles longer than the leaves; bracts ovate and auricled; spikes 3-9 flowered; vexillum a hooded blade on a slender claw; loment 3-4 jointed. Sandy soil, Spring and Summer.
22. Anthers of two kinds (as in 21 *Zornia*);—rigid herbs with bristly or sticky-pubescent foliage; leaflets 3, prominently veined; flowers in spikes or heads; calyx 2-lipped; stamens monadelphous; style filiform; loment 2-jointed, the lower joint empty, - - - - - *Stylosanthes*, *Pencil-flower*
S. biflora (hispida). Pubescent in lines or hispid; stipules sheathing; spikes 3-4 flowered. Sandy pine-land. Summer.
22. Anthers of the same size, but alternately attached at the base and versatile;—erect herbs with hirsute foliage; leaflets 5-7; flowers in terminal racemes; calyx 2-lipped; stamens monadelphous; style slender; joints of loment longitudinally striated, - - - - - *Chapmania*
C. floridana. Stem slender; stipules small, free; racemes few-flowered. Pine-land. Early Summer.

22. Leaflets stipellate; lomenta of 2-more joints;—chiefly branching herbs with pinnately-trifoliate stipulate leaves; flowers in racemes and panicles; calyx bracted, 2-lipped, the upper lip emarginate or entire, the lower 3-cleft; stamens diadelphous or nearly so; loment 2-6 jointed,
Melbomia (*Desmodium*), *Tick-trefoil*, *Beggar's ticks*
- a. Leaflets linear;—stem erect, finally pubescent; stipules setaceous, deciduous; corolla purplish; lomenta 2-3 jointed, joints small, with straight or depressed backs, triangular. Pine-barrens. Summer and Fall. - - - *M. stricta* b.
- a. Leaflets not linear, - - - - -
- b. Joints of the lomenta decidedly longer than broad;—stem tall; foliage pale green, pubescent; stipules large, persistent; leaflets lanceolate to ovate; corolla violet-purple; lomenta 3-6 jointed, joints hairy, convex on the upper suture, rounded on the lower ones. Woodland. Summer and Fall. - *M. canescens* c.
- b. Joints of the lomenta barely longer than broad, - - - - -
- c. Leaflets conspicuously paler beneath;—stem erect, terete, nearly glabrous; stipules subulate, deciduous; leaflets ovate, the terminal one rhomboid; panicle leafless, rough; corolla blue-purple; lomenta 3-6 jointed, straight on the dorsal suture, joints triangular. Pine-land. Summer and Fall.
M. laevigata (*D. rhombifolium*) d.
- e. Leaflets variously pubescent, - - - - -
- d. Lomenta stalked, 3-6 jointed;—stem erect, almost smooth; stipules deciduous; leaflets oblong; corolla purple; lomenta nearly straight on the upper suture, joints triangular. Open woods. Summer and Fall. - - - *M. Dillonii* e.
- d. Lomenta almost sessile, 2-3 jointed, - - - - -
- e. Stems rigid, striate;—roughly pubescent; stipules small, deciduous; leaflets ovate-oblong, yellowish green; corolla purplish; joints small, obliquely oval. Dry soil. Late Summer. - *M. rigida*
- e. Stems erect; petioles ciliate;—stem hirsute or minutely pubescent; leaves crowded; stipules subulate; leaflets roundish and somewhat leathery; corolla purple; joints half orbicular. Sandy fields. Late Summer. - *M. obtusa* (*D. ciliare*)
23. Leaflets not stipulate, lomenta of 1-2 joints;—herbs with pinnately trifoliate leaves and mucronate stipules; the small flowers in racemes or spikes; calyx bracted, 5-cleft, with subulate teeth; stamens diadelphous; lomenta small, joints lenticular, prominently veined. Dry sandy soil. Summer and Fall.
Leptodesa, *Bush-clover*
- L. repens. Stem prostrate; flowers of two kinds, viz: complete but sterile, and without corolla and stamens but fertile; peduncles of the petaliferous flower-clusters longer than the leaves; corolla violet-purple.
- L. violacea. Stems erect or spreading; flowers of two kinds; peduncles relatively short; corolla violet-purple.
- L. hirta. Stem erect or ascending; flowers all complete and fertile; corolla yellowish white and vexillum often with a purple spot; peduncles longer than the leaves.
- L. capitata. Much like the preceding; peduncles shorter than the leaves.
24. Keel of the corolla neither coiled nor curved, - - - - - 25
24. Keel of the corolla coiled or curved, - - - - - 30

25. Style smooth or sparingly pubescent below, - - - 26
25. Style bearded along the inner side;—herbs with erect or slightly twining stems; leaves pinnately many-foliate, with stipules; flowers showy, solitary in the axils, or in racemes; calyx 5-toothed, longer than broad; vexillum large, notched at the apex; wings curved; keel shorter than the wings; stamens diadelphous, or monadelphous below; pod narrow; Clitoria, *Butterfly-pea*
- C. *Mariana*. Peduncles shorter than the petioles; corolla lilac or pale blue, vexillum striped with magenta near the center. Sandy soil. Spring and Summer.
26. Vexillum not spurred at the base, - - - 27
26. Vexillum spurred at the base;—herbs with prostrate or climbing stems; leaves pinnately 3-or 5-7 foliate with stipules; flowers showy, solitary or several together on axillary peduncles; calyx 5-cleft, the upper two lobes sometimes united; vexillum large, wings curved, keel nearly as long as the wings; stamens monadelphous below; pod narrow,
- Bradburya (*Centrosema*, Clitoria), *Butterfly-pea*
- B. *Virginiana*. Twining herb; upper calyx-lobe twice as long as the tube; corolla lilac. Sandy soil. Spring to Fall.
27. Corolla yellow, - - - 28
27. Corolla not yellow, - - - 29
28. Flowers 1-8 together in the axils of the leaf-like bracts;—erect branching herb with trifoliate, almost sessile leaves, resinous-dotted; calyx deeply 4-cleft; stamens diadelphous, - - - *Pithecia*
- P. (*Rhynchosia*) *galactioides*. Stem bushy, purplish; corolla yellow, sometimes partially reddish or purplish-veined. Sandy pine-land. Summer.
28. Flowers in terminal or axillary racemes or clusters;—twining, trailing or erect, with 1-3 foliate leaves, stipulate and resinous-dotted; calyx more or less 2-lipped, 5-lobed; vexillum broad, wings narrow, keel incurved at the apex; stamens diadelphous,
- Dolicholus* (*Rhynchosia*)
- D. *tomentosus*. Mostly climbing; all or the upper leaves 3-foliate, terminal leaflet the largest; racemes nearly sessile, few-flowered. Dry soil. Summer.
- D. *simplexifolius*. Erect; leaves 1-foliate, leaflets reniform; racemes nearly sessile. Dry soil. Summer and Fall.
- D. *erectus*. Erect; all or the upper leaves 3-foliate, leaflets thickly pubescent; racemes numerous, axillary, very short peduncled. Dry soil. Summer and Fall.
- D. *mollissimus*. Erect; leaves rather remote, 3-foliate; racemes terminal, elongated, and a few short ones in the axils of the upper leaves. Pine-land. Spring to Fall.
29. Pods terete, torulose; corolla scarlet;—erect, more or less reclining; leaves pinnately 3-foliate with gland-like stipules; flowers showy, in long terminal and axillary racemes, the former leaf-bracted, the latter naked; calyx truncate; vexillum narrow, straight, long; wings and keel very small; stamens diadelphous or somewhat monadelphous at the base, partly exserted; style slender, - - - *Erythrina*
- E. *herbacea*, *Cherokee Bean*. Herbaceous above the root, armed with prickles; leaflets deltoid to hastate; vexillum folded; pods deeply con-

stricted between the seeds, the latter scarlet. Pine-land. Spring.
E. laurifolia (Crista-galli) and *E. speciosa* are shrubby and bushy, and planted under the name of *Coral-Bush*.

29. Pods flattened; corolla purple or white;—decumbent, prostrate or twining herbs, leaves 3-foliate, rarely 1-9 foliate; stipules deciduous; flowers in axillary raceme-like panicles; calyx 4-toothed; vexillum broad, reflexed; wings oblong with the keel adhering; stamens diadelphous or monadelphous to the middle; style filiform; pod sometimes produced from underground apetalous flowers. In dry soil and pine-land. - - *Galactia, Milk-pea*
- a. Leaves trifoliate, - - - - - b.
- a. Leaves pinnate, 7-9 foliate;—stems prostrate and climbing; foliage pubescent or silky or smooth; panicles longer than the leaves; corolla white, tinged with red. Spring and Summer. - - - - - *G. Elliotti*
- b. Stems erect or decumbent;—foliage smooth; leaflets narrow; racemes few-flowered; calyx with yellow hairs; corolla small, purple. Summer. - - - - - *G. brachypoda*
- b. Stems prostrate;—foliage hoary-pubescent; leaflets oval, the basal leaves mostly 1-foliate; racemes many-flowered; calyx-lobes long-acuminate; corolla rose-purple. Summer. - - *G. Floridae*
- b. Stems prostrate and climbing, or twining, - - - - - c.
- c. Foliage sparingly pubescent;—the terminal leaflets narrower than the other two; panicles not longer than the leaves; corolla violet-purple with a brownish spot on the vexillum. Summer. - - - - - *G. regularis* (glabella)
- c. Foliage pubescent or pilose;—panicles longer than the leaves; corolla pink-purple. Summer. - - - - - *G. volubilis* (pilosa)
- c. Foliage villous and somewhat hoary;—panicles erect, solitary, much longer than the leaves; flowers approximate near the top of the stout peduncles; corolla red or rose-purple. Summer. - - - - - *G. mollis*
30. Keel spirally twisted, - - - - - 31
30. Keel incurved, - - - - - 32
31. Leaflets 5 or more, not stipellate;—vines with twining stems and large roots; leaves odd-pinnate, stipules small; flowers in dense axillary racemes; calyx somewhat 2-lipped; vexillum very broad, reflexed; stamens diadelphous, - - - - - *Aples, Ground-nut*
- A. *Aples* (tuberosa). Roots tuberous; leaflets 5-7, rarely 3, ovate to lanceolate; racemes often in pairs, shorter than the leaves; corolla chocolate-brown. Low ground. Summer and Fall.
31. Leaflets 3, stipellate;—twining or prostrate herbs; stipules persistent; flowers scattered in racemes at the end of the axillary peduncles; calyx 5-toothed, the upper two more or less united; stamens diadelphous, style bearded, pods straight or falcate, *Phaseolus, Bean-vine, Kidney-bean*
- P. *sinuatus*. Trailing; smooth; racemes 6-8 times as long as the leaves; corolla pale-purple. Dry pine-land. Summer.
- P. *polystachus* (perennis). Climbing; pubescent; racemes twice as long as the leaves; corolla purple. Margins of fields. Summer.
- P. *smallifolius*. Twining; minutely pubescent; racemes usually shorter than the leaves; corolla pink or white. Hammocks. Summer and Fall.

33. Pods somewhat flattened;—trailing or twining herbs with stipulate 3-foliate leaves; flowers clustered at the end of the long axillary peduncles, calyx 5-toothed, the upper two more or less united; stamens diadelphous, style bent and bearded, pod straight, Strophostyles, *Wild Bean*
8. umbellata. Perennial, pubescent, trailing; peduncle 3-5 times longer than the subtending leaf-like bracts; corolla pale purple or pink, fading yellowish. Sandy soil. Summer and Fall.
8. helvols (Phaseolus helvols). Annual, villous-hirsute, trailing; peduncle 2-3 times as long as the leaves; corolla purple, fading greenish, Sandy soil. Summer and Fall.
32. Pods nearly cylindrical, somewhat torulose;—vines with prostrate or twining stems and stipulate 3-foliate leaves; flowers few, in cluster-like racemes at the end of axillary peduncles; calyx slightly 2-lipped, 4-toothed; vexillum auricled at the base; stamens diadelphous, included in the curved keel with the style bent upward; style hairy, appendaged below the stigma, Vigna, *China Bean*, *Cow-pea*
- V. repens (luteola). Foliage and pods pubescent, peduncles longer than the leaves, corolla yellow. Thickets along the coast. Summer and Fall.
- V. sinensis. Foliage and pods smooth or nearly so, peduncles usually shorter than the leaves, corolla yellowish tinged with purple. In thickets and cultivated. Summer and Fall.

86. Geraniaceae, *Geranium Family*.

Herbaceous or shrubby plants, mostly with pubescent or glandular foliage; the leaves alternate or opposite, lobed or divided, stipulate; flowers on axillary peduncles, regular, 5-parted; stamens distinct with versatile anthers, styles united; ovary superior, prolonged into a beak formed by the styles; fruit a capsule (regma), each of the 5 lobes separating elastically from an axis and curling back on the style.

Sepals 5; petals 5, alternating with 5 glands; stamens 10, rarely 5,

Geranium, Crane's Bill

- G. Carolinianum. Stems low, forking; leaves reniform in outline, 5-7 parted, segments 3-lobed, lobes entire or incised; peduncles short, making the flower-clusters dense; sepals awned, petals pink or whitish; fruit hairy, seeds obscurely reticulated. Dry soil. Spring and Summer.

The *Geraniums* of the garden belong to *Pelargonium, Stork's Bill*, with no glands between the petals; upper sepals spurred, the spur adnate to the pedicel; of the 10 stamens 3 or more are sterile.

In *Tropaeolum*, cultivated under the names of *Indian Cress* and *Nasturtium*, the spurs are free; stamens 8; fruit not beaked, separating from the short axis into three achenes; leaves alternate, exstipulate.

87. Balsaminaceae, *Jewel-weed Family*.

Smooth and succulent herbs with simple exstipulate leaves and irregular flowers on axillary peduncles; calyx

of 8 sepals, the lower one petaloid, saccate and spurred, all deciduous; corolla of 5 petals, the lateral pair on each side united, deciduous; stamens 5, each filament with a scale and partially united above; ovary 5-celled, stigma 5-lobed, sessile; fruit a capsule with elastically bursting and coiling valves.

Leaves alternate or opposite; flowers orange, mottled with brown, the saccate sepal conspicuously spotted, tipped with a recurved spur one-half as long as the body. Moist soil. Summer and Fall. - *Impatiens biflora* (falva), *Touch-me-not*, *Jewel-weed*. Cultivated species go by the name of *Balsamine*; potplants.

88. Oxalidaceae, Wood-Sorrel Family.

Chiefly herbs with sour juice; leaves basal or cauline, compound, with or without stipules, the leaflets notched at the apex and with a membranous fold in the sinus; flowers solitary or in peduncled cymes, umbel-like or dichotomous; sepals 5, persistent; petals 5, white, purplish or yellow, deciduous; stamens 10-15, more or less united; ovary superior, 5-celled; styles 5, distinct; fruit a capsule.

Plants caulescent, not succulent; leaves alternate, without stipules, palmately 3-foliate, leaflets obcordate; flowers yellow, stamens 10; fruit a 5-celled capsule. - *Xanthoxalis* (*Oxalis*), *Yellow Sour-Grass*.
X. macrantha. Erect or decumbent, strigillose; sepals optionally ciliate all around; petals golden yellow. Riverbanks. Spring to Fall.
X. stricta. Often decumbent, strigillose; sepals sparingly ciliate; petals pale yellow. Roadsides. Spring to Fall.
X. recurva. Tufted, villous; cymes umbel-like; sepals ciliate all around; petals golden yellow. Dry soil. Spring and Summer.
X. cymosa. Stems one or few together, somewhat pubescent or villous; cymes dichotomous; sepals ciliate at the apex; petals deep yellow. Moist or shaded soil. Spring to Fall.
 Cultivated species are *Oxalis* roses, rose-colored, and *O. versicolor*, white bordered with red, yellowish below.

89. Rutaceae, Rue Family.

Shrubs or trees often armed with prickles; leaves exstipulate, alternate or opposite, simple or pinnately compound, dotted; flowers mostly regular in cymes, paniculate or corymbose; sepals 3-5, more or less united at the base, or wanting; petals 3-5 or more; stamens as many to thrice as many as the petals, or more, inserted on a hypogynous disk, distinct or united below; ovaries 2-5, distinct or united; styles more or less united; stigma

often 3-5 angled; fruit capsular or a samara, drupe or berry.

1. Fruit a dry dehiscent capsule; seed solitary;—leaves alternate, odd-pinnate; sepals, petals and stamens 4-5. - - - Fagars
- F. *Clava-Herculis* (*Zanthoxylum Carolinianum*), *Toothache tree*, *Sea-ash*, *Prickly ash*, *Pepperwood*. A prickly shrub or tree, leaflets 7-11, flowers greenish to white. Dry soil near the coast.
1. Fruit dry indehiscent, samara-like, winged all around; seed solitary;—stem unarmed; leaves 3-foliate; sepals and petals 4-5; stamens 4-5, or abortive; styles 2-3, united, or none; stigma 2-3 lobed; flowers greenish yellow, - - - Ptelea
- P. *Baldwinii*, *Hop-tree*, *Whahoo*, *Water-ash*, *Shrubby Trefoil*. Smooth shrub with very small leaves; panicles few-flowered; flowers 4-parted, stamens slightly pubescent at the middle. Along St. Johns river. Spring.
- P. *trifoliata*. *Hop-tree*. Smooth, or pubescent; panicles many-flowered; stamens 4-5, densely villous below the middle, longer than the style in the sterile flowers, shorter in the fertile ones. Riverbanks. Spring.
1. Fruit a berry; seeds several in each cavity;—cultivated and naturalized shrubs and trees more or less armed; leaves mostly simple, leathery, often with a winged petiole; flowers regular, axillary; calyx cup-like; petals 5, rarely 4-8, white, at least inside, deciduous; stamens 20-60; ovary several-celled, superior; styles united, deciduous; berries with a bitter oily rind, - - - Citrus
- a. Leaves trifoliate, deciduous;—leaflets elliptical, dentate or crenate; flowers before the leaves, white, - - - C. *trifoliata* (tripertea)
- a. Leaves unifoliate, evergreen, - - - b
- b. Petioles wingless and marginless; leaves oblong, serrate or crenate; flowers mostly purplish outside; fruit large, mostly ovate-oblong, with a very thick tender rind and but slightly developed pulp, - - - C. *Medica*, *Citron**
- b. Petioles with wings or margins, - - - c
- c. Wings broad or narrow, - - - d
- c. Wings very narrow or mere margins, - - - e
- d. Leaves elliptical or ovate, acute, obtuse or acuminate; flowers white. (The *Otahette Orange* with pinkish flowers is cultivated as a dwarf petulant). - - - C. *aurantium*, *Orange*
- Var. *amara* (C. *Bigaradia*), *Sour, bitter or Seville Orange*. Petiole broadly wing-margined;—leaves ovate, pointed; flowers sweet-scented; fruit round, dark orange; pulp sour and bitter.
- Var. *Sinensis* (dulcis), *Common sweet orange*. Petiole narrowly winged;—leaves oblong-ovate, pointed; flowers large; fruit mainly round, orange or yellowish; pulp when ripe sweet or slightly acid. Cultivated forms are: *Naval*, *Boone*, *Hart*, *Homosassa*, *Jaffa* and *Jaffa-blood*, *Lamb*, *Parson-Brown*, etc.
- e. Leaves large, ovate or ovate-oblong, obtuse, often emarginate; petiole broadly winged; flowers white; pulp pale yellow or reddish, sweet or acid, - - - C. *Decumana*:
- Pomelo*, or *Grape-fruit*, is round;—cultivated forms are *aurantium*, *Josselyn*, *Hart*, *Marsh-seedless*, *Royal*, etc.
- Shaddock* is pear-shaped;—not cultivated for market.

* A form of *Watermelon* is also called "Citron."

- d. Leaves oval or elliptical, small, crenate or serrate; petiole wing-margined; flowers small, white or pinkish outside; fruit light-yellow, small, spherical, ovate or elliptical; rind thin, bitter; pulp very sour, somewhat bitter, - - - *C. limetta*, *Lime*
The *Takiti*, nearly seedless, is one of the best sorts.
- e. Petioles scarcely winged;—foliage dense, leaves small, lanceolate, slightly crenate; flowers small, white, in clusters; fruit compressed or pyriform; rind loose; segments loosely adherent; pulp sweet, - - - *C. nobilis*, *Mandarin*, *Kidglove*
Cultivated forms are: *Mandarin*, small, light orange; *Tangerine*, dark orange or reddish; *Satsuma*, flattened, orange.
- e. Petioles narrowly wing-margined;—branches smooth, angular; leaves linear-lanceolate, slightly serrate; flowers small, solitary or in clusters; fruit small; rind sweet, pulp sour, - - - *C. japonica*, *Kumquat*
Cultivated forms are: *Marumi*, fruit round; *Nagami*, fruit oval or oblong.
- e. Petioles slightly winged or marginless;—leaves ovate-oblong, crenate or serrate; flowers often reddish outside; fruit yellow, round, ovate or elliptical, mostly mamillate; rind thin, pulp juicy, acid. - - - *C. limonum*, *Lemon*
Cultivated forms are *Belair*, fruit blunt; *Genoa*, fruit oval, nearly seedless; *Villafranca*, seeds few or none, etc.

90. *Meliaceae*, *Mahogany Family*.

Trees or shrubs with alternate exstipulate leaves, odd-pinnate to thrice-pinnate; flowers in axillary panicles; sepals and petals 8-5, more or less coherent, and the latter sometimes adnate to the stamen tube; stamens 8-10, with filaments united into a tube; ovary 8-5 celled, superior; styles united; ovules 2-many in each cavity; fruit a berry, capsule or drupe; seeds winged or wingless.

1. Ovules many in a cavity; fruit a capsule as large as an orange; seeds winged;—flowers greenish yellow. A tall evergreen tree of South Florida, - - - *Swietenia*, *Mahogany*, *Madra Redwood*
1. Ovules two in a cavity; fruit a drupe as large as a cherry; seeds wingless;—flowers white to purple, sepals and petals 5, sometimes 6; staminal tube 10- or 12-lobed, each lobe 2-8 cleft, anthers 10 or 12; ovary 8-6 celled; drupe with a 1-5-celled stone, and the seeds solitary in each cavity. Spring. - - - *Melia*, *Pride of India*
- M. *Asedarach*, *China-berry tree*. A large deciduous ornamental tree with twice-pinnate leaves, flowers lilac, berries yellow.
The var. *umbraculifera*, *Umbrella-tree*, has a depressed umbrella-like top; another var. *sempervirens*, *Dwarf China-berry*, is a shrub blooming at any time of the year.

91. *Polygalaceae*, *Milkwort Family*.

Herbs or rarely shrubs with entire exstipulate leaves and irregular hypogynous flowers; calyx of 5 sepals, of

which the two lateral are petaloid and are called WINGS; corolla of 5 or 8 petals, of which the lower, often beaked or crested, is called the KEEL; stamens 8, 6 or 4, usually united into a tube, cleft on the back; ovary 2-celled, styles united, stigma curved, dilated or lobed; fruit mostly capsular, 2-celled.

Leaves alternate, opposite, or whorled; flowers in densely crowded spikes or racemes; some species produce racemes of cleistogene flowers at the base; sepals 5; petals 3, rarely 5; stamens 8, rarely 6, united into a tube or in two equal sets; style curved, stigma 2-4 lobed; carpels flat, 2-celled; seed 1 in each cavity, usually bearing a caruncle.

Polygala, Milkwort

- | | | | |
|---|-----------|---|---|
| 1. Leaves alternate, | - - - - - | - | 2 |
| 1. Leaves whorled, | - - - - - | - | 10 |
| 2. Flowers purplish, | - - - - - | - | 3 |
| 2. Flowers white or yellow, | - - - - - | - | 6 |
| 2. Flowers in slender, loose-flowered racemes, | - - - - - | - | 4 |
| 2. Flowers in dense spike-like racemes, | - - - - - | - | 5 |
| 4. Keel without beak or crest;—branching at the base, sparingly above; pubescent; flowers pink or violet-purple, becoming greenish; lateral petals much shorter than the naked hooded keel; stamens 8, monadelphous below the middle; style dilated and bearded above. Pine-woods. Summer and Fall. | - - - - - | - | <i>P. grandiflora</i> |
| 4. Keel crested with large branching processes;—branching at the base, simple above; flowers rose-purple to pink; cleistogene flowers present; stamens 8; style short, hooded. Dry sandy soil. Summer. | - - - - - | - | <i>P. polygama</i> |
| 5. Stamens 6;—not or sparingly branched; leaves scale-like; flowers pink or whitish; wings thrice longer than the other sepals; keel somewhat crested; style short, auricled above. Low pine-land. Spring and Summer. | - - - - - | - | <i>P. setacea</i> |
| 5. Stamens 8;—Slender, striate or angled, sparingly branched above; leaves small; flowers pink or purple; wings mucronate; petals united below into a cleft tube; keel crested; style filiform, auricled above. Sandy soil. Summer. | - - - - - | - | <i>P. incarnata</i> |
| 6. Flowers in dense subglobose racemes, solitary, | - - - - - | - | 7 |
| 6. Flowers in racemes, the racemes corymbd, | - - - - - | - | 8 |
| 7. Wings acuminate;—low, erect, often tufted; flowers yellow or greenish yellow; keel crested; stamens usually 6, style slender. Pine-barrens. Throughout the year. | - - - - - | - | <i>P. nana</i> |
| 7. Wings cuspidate;—ascending or decumbent; flowers orange-yellow; keel with a small fimbriate crest; stamens 8; style slender, prolonged into a curved tufted appendage. Low pine-land. Spring and Summer, | - - - - - | - | <i>P. lutea, Wild Bachelor's Button</i> |
| 8. Corolla white;—erect, branching above; wings ovate-lanceolate, keel with a minute fimbriate crest; stamens 8; style slender. Low pine-barrens. Summer. | - - - - - | - | <i>P. Baldwinii</i> |
| 8. Corolla yellow, | - - - - - | - | 9 |
| 9. Wings acuminate;—erect, branching above; wings twice or thrice larger than the other sepals; keel with a small fimbriate crest; stamens 8; style slender, auricled above, prolonged into a curved | - - - - - | - | |

- appendage. Pine-barren swamps. Summer and Fall. - *P. ramosa*
9. Wings cuspidate;—erect, branching above; wings nearly twice as large as the other sepals; keel with a crest of, few small processes; stamens 8; style broader at the middle, prolonged into a curved appendage. Pine-barren ponds. Summer. - *P. cymosa*
10. Flowers in slender spike-like racemes, - - - - 11
10. Flowers in dense, ovoid or cylindric racemes, - - - - 12
11. Stems branched at the base, branches wire-like; leaves in whorls of 4 or 5, obovate and lanceolate; flowers white or greenish, wings ovate, keel crested, capsule about as broad as long. Calcareous soil. Early Summer. - *P. Boykiai*
11. Stamens erect, filiform; leaves in distant whorls of 4 or 5, setaceous; flowers greenish, wings oval, keel crested; capsules longer than broad. Dry sand-hills. Spring and Summer. - *P. leptostachys*
11. Stems short or long, branched; leaves usually in whorls of 4 or 5, linear; flowers greenish white, wings ovate, keel crested; capsules longer than broad. Dry sandy soil. Spring to Fall. *P. verticillata*
12. Racemes long-peduncled; wings with a thick excurrent midvein;—erect or decumbent, 4-angled; lower leaves in whorls of 4, lanceolate or linear; flowers rose-purple, keel crested; stamens 8. Bogs. Summer and Fall. - *P. brevifolia*
12. Racemes sessile or short-peduncled; wings tapering into a long subulate point;—more or less branched, 4-angled; leaves in whorls of 4 or 5, spatulate-linear; flowers rose-purple or greenish; keel crested; stamens 8. Pine-barren swamps. Summer. - *P. cruciata*

92. Euphorbiaceae, *Spurge Family*.

Monœcious or diœcious herbs, shrubs or trees with acrid, and often milky, sap; leaves simple with or without stipules; flowers various, sometimes enclosed in a cup-shaped involucre; calyx inferior or wanting; corolla colored, scale-like or wanting; stamens few or many; ovary free, mostly 8-celled; styles distinct or united; fruit a capsule, mostly 3-lobed, separating when mature into three 2 valved, 1-2 seeded carpels, from a persistent axis.

1. Flowers not in an involucre; calyx of several sepals, more or less united, - 2
1. One fertile and several monandrous sterile flowers, without envelopes, enclosed in a common involucre (*Euphorbias*), - 9
2. Ovary 8-celled, cells 2-ovuled;—leaves alternate, sometimes resembling leaflets of a compound leaf; flowers small, greenish, apetalous, a staminate and a pistillate one together in an axil; sepals 5-8; stamens 8 with filaments partially united; styles 8, 2-cleft; fruit with 2-seeded carpels. Low ground. Summer. - *Phyllanthus*
- P. Carolinensis*. Smooth slender stem with 2-ranked branches; calyx 6-parted; seeds semi-circular, 3-angled, marked with lines of minute papillae.
- P. nivosus* var. *roseo-pictus*, *Snow Bush*. Cultivated for its foliage, which is green variegated with white and mottled with pink and rose.
2. Ovary 1-or 3-celled, cells 1-ovuled, - - - - 8

3. Flowers in bracted spikes or racemes, the staminate above the pistillate, - 4
3. Flowers in apetalous cymes or in racemes, the pistillate above the staminate, 8
4. Corolla present in either staminate or pistillate flowers or in both (except in *Croton maritimus*), - - - - - 5
4. Corolla wanting, - - - - - 6
5. Stamens 6 or more; capsules 3-celled;—stellate-pubescent or scaly, monœcious, herbs or shrubs with mostly alternate leaves; flowers in axillary or terminal clusters; staminate flowers with 4-6 sepals and petals, and 5-many distinct stamens; pistillate flowers with 5-10 sepals, no petals, and 2-3 styles once to thrice 2-cleft, - - - - - *Croton*.
 - C. *argyranthemus*. Leaves with silvery scales beneath; sterile flowers 10-15 with 10-12 stamens, fertile ones few with 5-7 parted calyx and slender 4-cleft styles. Dry pine-land. Summer.
 - C. *glandulosus*. Herbs with stellate foliage; sterile flowers minute, white with 4-parted calyx and 4 petals; stamens 8; fertile flowers with 5-parted calyx and 6-cleft styles. Waste places. Summer.
 - C. *punctatus* (*maritimus*). Tall bushy herb, gray stellate-pubescent all over; sterile and fertile flowers few, both without corolla; calyx 5-cleft; stamens mostly 12; stigmas 18-20. Along the coast. Summer and Fall.
 - C. *Elliotii*. Tall bushy herb, stellate-tomentose; sterile flowers few and very small, with 5-parted calyx and 5-6 petals, stamens 8-10; fertile flowers, several with 6-7 parted calyx and 4-cleft styles. Pine-land. Summer.

Numerous *Crotons* are cultivated for their brilliantly variegated leaves.
5. Stamens 5; capsules 1-celled;—silvery-scurry, monœcious herbs with narrow alternate leaves; sterile flowers with 5 sepals and 5 petals; fertile flowers with 3-5 sepals, no petals, but 5 petal-like glands opposite the sepals; stigmas 3, each 2-cleft, - *Crotonopsis*
 - C. *linearis*. Stems wiry, leaves few; fruit small, scaly. Dry sand. Summer.
6. Stamens 8-16, ovary 3-celled, stigmas fringed;—monœcious herbs with alternate, serrate, stipulate leaves; sterile flowers with 4-parted calyx, in the axil of a minute bract; fertile flowers with 3-5 parted calyx, subtended by a leafy bract. Dry ground. Summer.

Acalypha, Three-seeded Mercury

 - A. *Virginica*. Dark green; leaves long-petioled, bracts longer than the spikes.
 - A. *gracilis*. Pale green; leaves short-petioled, bracts not longer than the spikes.
 - A. *mosaica* (*triumphans*). Cultivated for the foliage, the leaves having all shades of green, yellow and red, with curious markings.
 - A. *hispidula* (*Sanderi*). *Chenille-plant*. Cultivated for its long red spikes.
 - A. *marginata*. Tall plant, the green leaves margined with red and pink.
6. Stamens 1-5, - - - - - 7
2. Pistillate flowers and capsules pedicelled;—monœcious herbs with alternate leaves; sterile flowers with 3-5 parted calyx, and fertile flowers with 3-8 parted calyx; ovary 3-celled, styles 3 often united to above the middle. Sandy soil. Spring to Fall. - *Tragia*
 - T. *urens* (*lanœca*). Downy, low herb with nearly sessile leaves and slender racemes surpassing them in length; sterile flowers with 4 sepals and 2 stamens.
2. Pistillate flowers and capsules sessile;—smooth monœcious plants with milky juice, and alternate leaves often with 2 glands at the base; sterile flowers several together, with 2-8 toothed calyx

- and 2-3 exserted stamens; fertile flowers solitary or few, with 3-lobed calyx and stout style. *Stillingia, Queen's Delight, Queen-root*
8. *sylvatica*. Stout herb, umbellately branched above; leaves lanceolate to obovate, crenulate; spikes yellowish, longer than the leaves. Dry soil. Spring to Fall.
8. *aquatica*. Shrub with umbel-like top; leaves linear, finely serrate, the upper ones yellowish; spikes not longer than the leaves. In and about pine-barren ponds. Spring to Fall.
8. Leaves peltate;—tall, glabrous, monococious herbs with large, petioled, palmately-lobed leaves; sterile flowers with a 3-5 parted calyx and numerous stamens; fertile flowers with a caducous calyx, 3-celled ovary, and 3 red styles united below and 2-cleft; fruit usually spiny, consisting of three 1-celled, 1-seeded, 2-valved carpels, - - - *Ricinus, Castor-Bean*
- B. communis, Palma Christi*. Stem branched, leaves large 6-11 lobed; racemes in the forks of the stem opposite the leaves; seeds shining, mottled. Cultivated and escaped. Summer and Fall.
8. Leaves not peltate; plants wild;—stinging bristly herbs and shrubs, with alternate, petioled, lobed leaves; flowers in cymes, the sterile ones with a corolla-like 5-lobed calyx, stamens 10-20 in series, filaments united below; fertile flowers in the lower forks of the cymes, ovary 3-celled, styles united below; fruit separating into 2-valved carpels, - - - *Cnidioscolus*
- C. stimulosus (Jatropha stimulosus), Spurge Nettle*. Bright-green foliage, 3-5 lobed; calyx of sterile flowers salver-shaped, white, sometimes pinkish. Dry sandy soil. Spring to Fall.
8. Leaves not peltate; plants cultivated;—herbs, or shrubs with alternate, entire or 3-7 lobed leaves; flowers with 5-toothed calyx, racemed or panicled; the sterile with 10 stamens in two series, the fertile with 3 styles slightly united; capsule 3-celled, with seeds solitary in each cell, - - - *Manihot*
- M. utilisima, Bitter Cassava*. Anthers short; capsule wing-angled;—roots contain poisonous juice which is pressed out or rendered harmless by heating; tapioca is made from the rootstarch.
- M. palmata, Sweet Cassava*. Anthers elongated; capsule only angular above, not winged;—roots more reddish colored and not poisonous.
9. Glands of the involucre with petal-like appendages, which may be much reduced, - - - 10
9. Glands of the involucre without petal-like appendages, - - - 11
10. Stems radially branched at the base; leaves all opposite, with delicate entire or fringed stipules;—involucre solitary in the axils or in axillary cymes; glands 4, one sinus of each involucre being without a gland, - - - *Chamaesyce (Euphorbia)*
- C. (E.) polygonifolia*. Pale green, smooth herb with prostrate, forked branches and narrow fleshy leaves; glands of the involucre slightly margined by the narrow appendages. In sand along the coast. Summer and Fall.
- C. (E.) cordifolia*. Smooth, with spreading or prostrate forked branches and oval leaves; appendages of the glands white, ovate or roundish. Sandy pine-land. Summer and Fall.
- C. (E.) maculata*. Dark green, pubescent, with prostrate often dark-red branches and oblong leaves, usually blotched; involucre solitary in the

axils, the glands with narrow, white or red appendages. Waste places. Spring to Fall.

10. Stems umbellately branched above; leaves of the stem alternate, those of the branches opposite or whorled, without stipules;—involucres in clusters and numerous; glands 4 or 5,

Tithymalopsis (Euphorbia)

T. (E.) eriogonoides. Deep green, smooth; branches slender to filiform, leaves linear; glands of involucre reniform with white or pink appendages. In loose sand. Spring and summer.

T. (E.) Curtisii. Smooth; stems thin, more or less branched, stem-leaves scattered, the upper ones whorled; leaves linear; appendages of the glands crenate, white. Low pine-land. Summer.

T. (E.) corollata. Bright green, smooth or pubescent; stems often spotted; leaves linear to oblong, the upper ones whorled; glands yellowish-green with white cuneate appendages. Dry soil. Summer and Fall.

11. Stem simple or branched, topped by an umbel; leaves below the umbel alternate or scattered; no stipules;—bracts of the umbel different from the stem-leaves; involucres axillary, in cymes; glands 4, and a thin often ciliate lobe instead of the fifth,

Tithymalus (Euphorbia)

T. inundatus (*E. inundata*). Stem topped by a 2-3 rayed umbel and simple or branched below it; leaves alternate; glands reniform. In pine-land swamps. Early Summer.

11. Stem not topped by an umbel; leaves alternate below, opposite above; stipules gland-like;—herbs or shrubs often with colored foliage, leaves all similar; involucres solitary or in cymes; glands 1, rarely 3 or 4, the missing ones represented by narrow lobes,

Poinsettia (Euphorbia)

P. havanensis (*E. graminifolia*). Stems with more or less spreading branches; leaves linear, often somewhat revolute; bracts similar to the leaves but with a purple or scarlet blotch at the base; involucres clustered, with 1 gland. Sandy soil. Summer.

P. (E.) pulcherrima. A tall tropical plant with large scarlet bracts subtending the flowers. Cultivated. Winter and Spring.

93. Spondiaceae (Anacardiaceae), Sumac Family.

Shrubs, vines or trees with a milky, resinous, often caustic, sap; leaves exstipulate, alternate, simple or pinnately compound; flowers in spikes, racemes or panicles; sepals and petals 3-5; stamens 3-5, or 10, alternate with the petals, and inserted with them on the base of the calyx or on a hypogynous disk; ovary solitary, free; styles united, sometimes distinct; fruit a drupe or berry, seed solitary.

1. Leaves 3-several foliate, drupe glabrous, stone ribbed;—flowers polygamous or dioecious, in axillary panicles; poisonous, resinous sap

Rhus

R. radicans, *Poison-ivy*. A vine, climbing by rootlets; leaflets 3, membranous, ovate or ovate-lanceolate, coarsely toothed or rarely lobed,

sparingly pubescent, acuminate at the apex, rounded or acute at the base; panicles loosely flowered, flowers greenish; sepals, petals and stamens 5; drupes subglobose, whitish. Thickets. Spring and Summer.

- R. toxicodendron, Poison-oak.** Low shrub, spreading by underground stems; foliage and inflorescence tomentose; leaflets 3, leathery, ovate, crenate or lobed; panicles densely flowered; flowers greenish-white; sepals, petals and stamens 5; drupes depressed-globose, greenish-yellow. Pine-land. Spring.

- R. vernix (venenata), Poison-sumac, Poison-elder, Thunder-wood, etc.** Shrub or small tree with very poisonous sap; bark pale; leaflets 7-13, oblong to oval, smooth; panicles on long peduncles, rather loosely many-flowered; flowers greenish; sepals ovate, petals linear-oblong; stamens longer than the petals in the sterile flowers, much shorter in the fertile flowers; drupes somewhat flattened, in drooping panicles, white. Swamps. Early Summer.

1. Leaves 3-several foliate, drupe pubescent, stone smooth;—flowers polygamous or dioecious, in terminal panicles; plants not poisonous. - Schmalzia, Sumac
8. (*Rhus*) **copallina, Dwarf Sumac.** A shrub with sticky milky sap; foliage smooth or pubescent; leaflets lanceolate or oblong, 9-25, the rachis winged; panicles broad, densely flowered; flowers greenish; stamens in sterile flowers exserted; drupes bright red. Open woods. Summer.

94. *Cyrillaceae, Titi Family.*

Shrubs or small trees with alternate, exstipulate, evergreen leaves, mostly near the ends of the branchlets; flowers in racemes; corolla white, hypogynous.

1. Bark pale, racemes lateral, pedicels erect or spreading; sepals 5, equal; petals 5, contorted, acute; stamens 5; ovary 2-celled, ovules 2-3 in each cavity; fruit dehiscent, not winged. River-banks and ponds. Early Summer. - *Cyrilli, Ironwood, White Titi*
- C. racemiflora.** Tall shrub or small tree; leaves 5-10 cm. long; capsule ovoid.
- C. parvifolia.** Shrub; leaves 1-4 cm. long; capsule globose.
1. Bark dark; racemes terminal, pedicels drooping; sepals 5-8 unequal; petals 5-8, hooded at the apex, obtuse; stamens 10; ovary 3-4 celled, ovules 1 in each cavity; fruit indehiscent with 3-4 wings. Pine-swamps. Spring. - *Cliftonia, Ironwood, Black Titi*
- C. monophylla (ligustrina).** Tall shrub; leaves 4-6 cm. long; capsule ovoid; flowers fragrant.

95. *Aquifoliaceae (Ilicaceae), Holly Family.*

Mostly evergreen shrubs or trees with alternate, exstipulate leaves, sometimes spiny; flowers small, perfect or polygamous; calyx of 4-6 persistent sepals; corolla 4-6 cleft or parted, hypogynous, white or greenish, deciduous; stamens 4-6, inserted at the base of the corolla and alternate with the petals; ovary 2-6 celled, with 1-2 ovules in each cell; fruit a drupe with 4-8 nutlets.

Flowers sometimes dioecious, the sterile in axillary clusters, the fertile

- | | | | | | |
|---|---|---|---|---|------|
| solitary; corolla rotate | - | - | - | - | flex |
| 1. Leaves deciduous | - | - | - | - | 2 |
| 1. Leaves evergreen | - | - | - | - | 3 |
| 2. Leaves thickish, spatulate, oblanceolate or elliptic, crenate-serrate, glabrous above, usually pubescent and paler beneath; flowers in axillary clusters; corolla white; drupe orange or scarlet. River-swamps. Spring. | - | - | - | - | |
| | | | | I. decidua, Possum-haw, Bear-berry | |
| 3. Leaves rather thin, broadly oval, ovate, sometimes elliptic, serrate above the middle, glabrous on both sides; sterile flowers clustered, fertile ones solitary; corolla white; drupe red. Sandy margins of swamps. Spring. | - | - | - | - | |
| | | | | I. Caroliniana (ambigua) | |
| 3. Drupe black | - | - | - | - | 4 |
| 3. Drupe red | - | - | - | - | 5 |
| 4. Velvety-pubescent; leaves obovate to oval, crenately 2-4 toothed near the apex; dark green and lustrous above, paler and dull beneath; sterile peduncles many-flowered, the fertile 1-flowered; flowers white. Sandy soil towards the coast. Early summer. | - | - | - | - | |
| | | | | I. glabra, Ink-berry | |
| 4. Glabrous, or nearly so; leaves obovate to oval, entire or with scattered spiny teeth; dark green and lustrous above, paler beneath; peduncles 1-flowered, the sterile ones mostly clustered, the fertile solitary; flowers white. Swamps. Late Spring. | - | - | - | - | |
| | | | | I. lucida (coriacea) | |
| 5. Leaves entire or with few appressed teeth near the apex | - | - | - | - | 6 |
| 5. Leaves crenate-serrate;—sometimes forming thickets; flowers in axillary clusters; corolla white, the lobes in the fertile flowers longer, those in the sterile flowers shorter than the stamens. Banks of lakes and river. Spring. | - | - | - | - | |
| | | | | I. vomitoria (I. Cassine, Walt.), Cassine, Yaupon | |
| 5. Leaves parchment-like, oval to obovate, spine-tipped at the apex and spiny-toothed or entire;—bark pale; stamens longer than corolla in the sterile flowers, shorter than corolla in the fertile flowers; drupes red, rarely yellow. Woods, and planted. Spring. | - | - | - | - | |
| | | | | I. opaca, Holly, White Holly | |
| 6. Leaves oblanceolate or oblong;—petioles usually pubescent; flowers in umbel-like clusters; corolla white, the lobes mostly longer than the stamens; drupes sometimes yellowish-red, solitary or 3 in a cluster on stout pubescent pedicels. Swamps near the coast, and planted. Spring. I. Cassine, L. (I. Dahoon), Dahoon, Yaupon | - | - | - | - | |
| 6. Leaves linear, very rigid;—petioles short; flowers solitary or few in the axils; corolla white, the lobes longer than the stamens. In wet pine-land. Spring. | - | - | - | - | |
| | | | | I. myrtifolia | |

96. Celastraceae, Staff-tree Family.

Erect or twining shrubs, or trees, with simple leaves; flowers in cymes, sometimes clusters, or solitary; sepals and petals 4-5; stamens 4-5, alternate with the petals; ovary superior, 2-5 celled; style short or wanting, stigma 2-5 lobed; ovules 1-several in each cell; fruit a capsule, drupe or berry.

Shrubs or small trees with 4-angled branches; opposite, serrate leaves

and caducous stipules; the flowers with a fleshy calyx-disk surrounding the 3-5 celled ovary; capsule 3-5 lobed; seeds 2 in each cell, enclosed in a scarlet aril. Riverbanks. Early Summer.

Eosynus, Spindle-tree

E. Americanus, Strawberry-bush. Stems trailing; leaves oval to lanceolate; flowers solitary or 3 on a slender peduncle, greenish purple; capsules 3-5 lobed covered with spiny warts.

E. atropurpureus, Waahoo, Burning Bush. Stems erect, leaves oval or ovate; flowers in cymes twice or thrice forked, on long peduncles, dark purple; capsules 4-lobed, smooth, the lobes wing-like.

97. Aesculaceae (Hippocastanaceae), Buck-eye Family.

Shrubs or trees with opposite, exstipulate, palmately-compound leaves; flowers in terminal racemes or panicles, polygamous, irregular and unsymmetrical; calyx 5-lobed, with an annular, hypogynous disk; petals 4-5 unequal; stamens 5-8; ovary 3-celled, with 2 ovules in each cell; fruit a coriaceous capsule, loculicidally 3-valved; seed mostly solitary with a leathery testa.

Aesculus Pavla, Red Buck-eye. Shrub with smooth bark; leaflets 5-7, the leaflets oblanceolate, short-acuminate, finely serrate; flowers in a panicle, red; claws of the upper petals villous and as long as the blades, those of the lateral petals winged, several times longer than the blades; stamens slightly exserted; capsule unarmed. Rich soil. Late Spring.

98. Aceraceae, Maple Family.

Trees or shrubs with opposite, exstipulate, palmately-lobed leaves; flowers regular, mostly polygamous or dioecious; calyx 4-9 lobed, often colored; petals as many as the calyx-lobes, or none; stamens as many as the sepals, often 8; ovary free, 2-celled, with 2 ovules in each cell; styles united, stigma 2-cleft; fruit a double, 2-seeded samara.

1. Leaves simple, palmately lobed; flowers polygamous, clustered or racemose;—calyx 4-5, rarely 6-9 lobed; petals 5-8, or none. **Acer, Maple**
A. rubrum, Red Maple. A tree with pale bark; leaves shallowly 3-5 lobed; flowers appearing before the leaves, in dense, red or yellowish clusters; samaras drooping, red, with long pedicels. Low ground and planted. Early Spring.

A. Floridaanum. A tree with white bark; leaves with 3-5 obtuse few-toothed lobes; flowers appearing with the leaves, umbellate; calyx campanulate; fruit green. River-swamps. Spring.

1. Leaves pinnately-compound; flowers dioecious, the sterile ones in drooping clusters, the fertile in drooping racemes;—calyx minute, corolla wanting. **Rhus, Box-elder**
R. Negundo (Negundo aceroides). Tree with light green foliage, leaves 3-4 foliate; flowers appearing before the leaves; samaras drooping, light green. Riverbanks. Spring.

99. Sapindaceae, Soapberry Family.

Shrubs or trees, erect or climbing; leaves opposite or alternate, usually stipulate, simple or pinnately compound; flowers in racemes, panicles or corymbs; calyx 4-5 lobed, with an entire or lobed hypo- or perigynous disk; petals 4-5, or none; stamens 5 or 8-15; ovary 2-4 celled with partially united styles; ovules 1-several; fruit a capsule.

Leaves alternate, pinnately compound; flowers polygamous, in axillary or terminal racemes or panicles; calyx 4-5 parted; petals 4-5; stamens 8-10; ovary 2-4 celled, styles united to distinct, stigmas

- 2-4; ovules 1 in each cell; fruit berry-like, - - Sapindus, *Soapberry*
R. marginatus. Small tree; leaflets 7-13, lanceolate, acuminate; corolla white, tinged with red; stamens longer than the petals, with filaments pubescent at the top; mature carpels 1-2, drupe-like with orange pulp and brown seeds. Low sandy soil. Spring; fruit in Fall.
S. saponaria. Small tree; leaflets 4-7, oblong to obovate; sepals and petals ciliate; stamens about as long as the petals, with filaments pubescent to above the middle; carpels 1-3 with orange-brown pulp and black seeds. Cultivated.

100. Frangulaceae (Rhamnaceae), Buckthorn Family.

Trees or shrubs, some of them armed, with mostly alternate, simple leaves, and small, often deciduous stipules; flowers small, greenish or whitish, perigynous; sepals 4-5, united below, the disk lining or filling the tube; petals, when present, 4-5; stamens 4-5, opposite to the petals and inserted with them on the edge of the disk; ovary 2-3 celled, partially above the disk; styles and stigmas more or less united; ovules 1, rarely 2, in each cell; fruit a capsule or drupe.

Shrubs, often spiny, with minutely stipulate 3-veined leaves, and small flowers in terminal panicles, cymes or umbels; calyx white, 5-cleft; petals 5, long-clawed, hooded, protruding between the sepals; stamens 5, exserted; ovary 3-celled; styles short, stigmas

- 3; drupe berry-like, 3-lobed, - - - - - Ceanothus
C. microphyllus. A slender, yellowish, evergreen shrub, glabrous, much branched, with small leaves; panicles loosely flowered. Pine-barrens. Early Summer.
C. Americanus, Jersey-tea, Red-root. Deciduous shrub, pubescent, with ovate, serrate leaves; panicles densely flowered, peduncles elongated. Dry woods. Summer.

101. Vitaceae, Grape Family.

Climbing shrubs with opposite and alternate leaves, and small greenish flowers in an axillary inflorescence;

calyx truncate or obsolete, with or without disk; petals 4-5, perigynous or hypogynous, often caducous; stamens 4-5, opposite the petals; ovary 2-celled, or 3-6 celled; style short or none, stigma capitate or peltate; ovules 1-2 in each cell; fruit a berry.

1. Calyx-disk present; leaves simple or compound, - - - 2

1. Calyx-disk wanting; leaves digitately 5-7 foliate;—climbing vine with forking tendrils and alternate leaves; flowers in corymbs; petals and stamens 5, ovary 2-celled, the cells 2-ovuled; berries inedible, - - - *Parthenocissus, Virginia Creeper, American Ivy*
P. (*Ampelopsis*) *quinquefolia*. Tendrils adhering by disks; leaflets 5; berries deep blue, sometimes quite pulpy. Low grounds and planted. Early Summer.

2. Petals cohering, caducous, - - - 8

2. Petals distinct, spreading;—climbing vines with few tendrils and alternate, lobed or pinnately compound leaves; flowers in flat cymes; petals and stamens mostly 5, the latter exserted; berries inedible, - - - *Ampelopsis*

A. *arbores* (bipinnate), *Pepper-vine*. Few forking tendrils; leaves bipinnate, cymes long-peduncled but shorter than the leaves; disk surpassed by the ovary; berries dark purple. Margins of swamps. Summer.

3. Bark shreddy, tendrils forking;—vines with alternate leaves, simple or palmately lobed, angled, or coarsely toothed; flowers with minute calyx, caducous corolla, and exserted stamens which alternate with the lobes or glands of the calyx-disk; berries juicy, mostly edible, - - - *Vitis, Grape*

V. *cordifolia*, *Frost-grape, Chicken-Grape*. Leaves ovate in outline, or 3-lobed near the apex, coarsely toothed, cordate at the base, long-petioled; panicles drooping; berries black, acid. Thickets, Early Summer.

V. *vulpina*, *Muscadine*. Leaves glossy, 3-lobed and irregularly toothed, teeth and lobes acuminate, cordate or truncate at the base; stipules commonly ample; flowers in panicles; fruit dark purple with copious bloom and sour pulp. Riverbanks. Early Summer.—A form with small leaves, and very sour small berries is called *Mustang-grape*.

3. Bark not shreddy, tendrils simple;—vines, sometimes with aerial roots; leaves simple, coarsely toothed, with caducous stipules; flowers as in *Vitis*. - - - *Muscadina, Bullace-grape*

M. (*Vitis*) *Munsoniana*. Slender, trailing or low climbing; leaves thinnish but firm, coarsely toothed and glabrous, roundish or reniform; berries nearly black with or without bloom, with thinnish skin. Sandy soil. Throughout the year.

M. (*Vitis*) *rotundifolia*. Bushy, spreading or high climbing; leaves firm or leathery, coarsely toothed and glabrous, roundish to ovate; berries dull purple without bloom, with tough skin. Sandy soil and near swamps. Early Summer.

Allied to the latter species are the cultivated Florida grapes: the *James*, with a very large, nearly black berry; the *Meisch*, with a medium sized purple berry, and the *Scuppernong*, with a lighter or amber large berry; fruit August and September.

102. *Malvaceae, Mallow Family.*

Herbs and shrubs with palmately-veined, alternate, stipulate leaves, and regular, perfect flowers; sepals 5, united at the base, often subtended by an involucl; petals 5, hypogynous, distinct or united; stamens many, monadelphous, with reniform anthers; pistils several, distinct or united; fruit a several-celled capsule, or a collection of 1-seeded indehiscent carpels; seeds 1-many.

1. Calyx without involucl, - - - - - 2
1. Calyx with an involucl, - - - - - 3
2. Cells of the ovary 3-9 ovuled;—leaves softly pubescent, usually cordate at the base; flowers axillary, petals distinct; carpels 5-30, 1-celled; seeds 1-6 in each carpel. - *Abutilon, Indian Mallow*
 - A. *Abutilon* (Aiceense), *Velvet-leaf*. Leafblades 1-3 dm. in diameter, and petioles commonly as long as the blades; petals yellow. Waste places. Summer and Fall.
2. Cells of the ovary 1-ovuled;—leaves pubescent; flowers solitary or clustered in the axils, sometimes in a terminal inflorescence; carpels 5-many, 1-celled; mature carpels around an axis. Summer and Fall. - *Sida*
 - S. *rhombifolia*. Minutely downy or smooth annual, branching; leaves oblanceolate to obovate, pubescent beneath; calyx-tube 5-10 ribbed; petals pale yellow, sometimes with a red blotch at the base; carpels 10-12. Waste places.
 - S. *spinosa*. Minutely pubescent annual, simple or much branched; leaves lanceolate to ovate, the petioles of the larger ones with a spine at the base; petals pale yellow; carpels about 5. Roadside.
 - S. *Elliotii*. Roughish pubescent to smooth perennial, branched at the base; leaves linear; calyx smooth; petals yellow; carpels 8-12. Sandy soil.
 - S. *rubromarginata*. Minutely downy or smooth perennial; much branched, purple; leaves narrowly obovate to lanceolate, light green with purple margins; calyx angled; petals light orange; carpels 8-10. Sandy soil.
3. Ovary 5-celled, - - - - - 4
2. Ovary many-celled, 1-ovuled;—involucl 6-9 cleft; carpels arranged around an axis, - - - - - *Althaea*
 - A. *rosea, Hollyhock*. Leaves cordate, 5-7 angled. Cultivated.
4. Cells 1-ovuled, - - - - - 5
4. Cells 2-many ovuled, - - - - - 7
5. Stigmas 10, twice the number of carpels, - - - - - 6
5. Stigmas 5, as many as there are carpels;—leaves angularly lobed; involucls of 7-10 bractlets; flowers pink; capsule 5-angled. In marshes near the coast. Spring to Fall. - *Kosteletzkya*
 - K. *Virginica*. Leaves pubescent with stellate hairs, or scabrous.
 - K. *althaeifolia*. Leaves velvety-pubescent.
6. Carpels with barbed awns all over;—shrubby, with pubescent, angled or lobed leaves; involucls of 5-7 more or less united bractlets; corolla purplish; carpels arranged around an axis forming a bur-like fruit, - - - - - *Urena*
 - U. *lobata*. Leaves shallowly 3-5 lobed, whitish and prominently veined beneath. Waste places. Spring to Fall.

6. Carpels with 1-8 awns or unarmed;—shrubby, with pubescent, angled or lobed leaves; involucls of 5-15 bractlets; carpels arranged around an axis. Spring to Fall. Pavonia
- P. *spialifex*. Leaves toothed, petioles pubescent; bractlets 5; corolla yellow; carpels with 1 medial and 2 lateral awns. Sandy soil.
- P. *racemosa*. Leaves nearly entire, acuminate; bractlets 9-11; corolla greenish-yellow or white; carpels with 1 medial crest and 2 lateral cusps. In or near swamps.
7. Involucel of 3 conspicuous bracts; styles united;—leaves palmately lobed or entire; calyx cup-like; petals white or yellowish, turning pink or magenta; ovules numerous in each cell. Cultivated. Gossypium, Cotton
- G. *Barbadense*, *Sea-Island Cotton*. Lobes of the leaves 3-5, mostly longer than the body; seeds smooth, completely separable from the cotton.
- G. *herbaceum*, *Upland or Common Cotton*. Lobes of the leaves 3-5, mostly shorter than the body; seeds with a close persistent coat.
- G. *religiosum*. Shrubby; leaves with 3 lobes shorter than the body of the leaves; seeds with a close persistent coat, tawny.
7. Involucel of several, rarely 3-5 bractlets; styles spreading;—herbs, shrubs or trees. Hibiscus, Rose-mallow
- a. Calyx equally 5-cleft or toothed, persistent, b
- a. Calyx-tube split on one side, deciduous;—leaves 5-lobed; involucl about 5-bracted, caducous. Cultivated. H. *esculentus*, *Okra*, *Gumbo*
- b. Shrubs or small trees;—leaves 3-lobed; corolla purplish or roseate, c
- b. H. *Syriacus*, *Shrubby Althaea*, *Rose of Sharon*
- b. Herbs, c
- c. Bractlets 10-12, bristly, forked at the end; leaves hispid;—leaves 3-5 lobed; corolla yellow or cream-colored with a purple blotch. Near swamps. Summer. H. aculeatus
- c. Bractlets entire, d
- d. Foliage velvety-tomentose, e
- d. Foliage glabrous, f
- e. Leaves conspicuously 3-lobed; corolla pale pink with reddish blotch. Marshes near the coast. Summer and Fall. H. *grandiflorus*
- e. Leaves toothed or 3-5 angular; corolla pink with crimson blotch; capsule smooth. Marshes near the coast. Summer and Fall. H. Moscheutos
- e. Leaves toothed; corolla white, sulphur-yellow or pinkish, with crimson blotch; capsules hispid. Marshes near the coast. Summer and Fall. H. inaequalis
- f. Leaves 5-parted with narrow segments; corolla deep red. Marshes near the coast. Summer. H. coccineus
- f. Leaves 3-5 lobed; calyx-lobes longer than the tube; corolla crimson. Deep marshes. Summer and Fall. H. integrifolius
- f. Leaves 3-5 lobed; calyx-lobes shorter than the tube; corolla pink with purplish blotch. Riverbanks. Summer and Fall. H. *militaris*

103. Hypericaceae, St. John's Wort Family.

Herbs and shrubs with exstipulate, opposite, entire, dotted leaves, and hypogynous flowers in cymes; sepals and petals 4-5; stamens mostly numerous and in 3-5

sets; styles 2-5, often united; capsule 1-celled with parietal placentae, or 2-7 celled with axial placentae; seeds very numerous, small.

1. Sepals 4, and mostly petals 4, - - - - 2
1. Sepals and petals 5, - - - - 3
2. Sepals in pairs, unequal in size or shape, or both; capsule enclosed by outer pair;—shrubs with 2-edged branches; flowers yellow, terminal; ovary 1-celled, styles 2-4, distinct or united.

Ascyrum, St. Peter's-wort

- A. stans. Leaves clasping; outer sepals longer than the inner, and broader than the leaves; styles 3-4. Moist sandy soil. Summer and Fall.
- A. tetrapetalum (amplexicaule). Leaves clasping; outer sepals as long as the inner, and narrower than the leaves; styles 3-4. Moist sandy soil. Spring to Fall.
2. Sepals in pairs, slightly unequal in size and shape; capsule longer than the sepals;—shrubby; flowers yellow, terminal, solitary or clustered; petals unequal; ovary 1-celled; styles 3, - - - *Crookea*
- C. microsepala (*Ascyrum microsepalum*). Branches decumbent or ascending; leaves sessile. Sandy soil. Spring.
3. Petals pink, sometimes tinged with green or purple;—glabrous marsh-herbs; leaves thickish with veins curving along the margins; flowers few, in cymes; stamens mostly 9, in sets of 3, with orange glands between the sets; ovary 3-celled; styles 3, distinct; capsule longer than the sepals,

Triadenum (Elofea), Marsh St. John's-wort

- T. virginicum. Leaves sessile, sometimes clasping, broadest below the middle. Summer.
- T. petiolatum. Leaves petioled, narrow at the base. Summer.
3. Petals yellow, - - - - 4
4. Leaves reduced to scales;—somewhat fleshy herbs with the flowers scattered along the branches; stamens 5-20; ovary 1-celled; styles 3, distinct. In sandy soil, - - - *Sarothra*
- S. gentianoides (*Hypericum Sarothra*), *Pine Tassel, Orange-grass*. Branches wire-like; flowers sessile, sepals shorter than the capsules; stamens 5-10. Spring to Fall.
- S. (*Hypericum*) *Drummondii*. Simple or branched, wing-angled; flowers pedicelled; sepals about as long as the capsules; stamens 10-20. Summer.
4. Leaves flat;—shrubs with leaves sessile or clasping; flowers with numerous stamens, distinct or in 3-6 sets, without glands; ovary 1-celled; styles 3-5, - - - *Hypericum, St. John's-wort*
- a. Stamens 5-12, usually in 3 sets; leaves ovate to oblong;—stem 4-angled, sepals acute. Low places. Summer. - - - *H. mutilum*
- a. Stamens 15-40, distinct or in sets; styles 3, rarely 4, - - - b
- b. Capsules 1-celled or incompletely 3-celled, - - - c
- b. Capsules completely 3-celled;—herbs with more or less clasping, leathery leaves; corolla deep yellow with black dots. Dry soil. Summer. - - - *H. maculatum*
- c. Capsules 1-celled; styles distinct, - - - d
- c. Capsules incompletely 3-celled; sepals linear, small, not foliaceous, - - e
- c. Capsules incompletely 3-4 celled; sepals foliaceous;—shrubby; leaves leathery, clasping; corolla golden-yellow. Pine-land.

- Summer. - - - - - *H. myrtifolium*
- d. Foliage glabrous;—stem 4-angled; leaves oblong; outer sepals broadest at the base. Pine-land. Summer. *H. virgatum (angulosum)*
- d. Foliage glabrous;—stem 4-angled; leaves linear; outer sepals broadest about the middle. - *H. acutifolium (var. of preceding?)*
- d. Foliage tomentose;—sepals ciliate. Moist pine-land. Summer. *H. setosum (pilosum)*
- e. Shrubby, glabrous; leaves linear or linear-spatulate, sessile or nearly so; flowers solitary or in axillary panicle cymes. Low pine-land. Summer and Fall. - *H. gallioides*
- e. Shrubby, with sharply angled branches; leaves clustered in the axils of larger ones, linear; flowers in loose panicles. Pine-land. Spring and Summer. - *H. fasciculatum*
- e. Shrubby; branches and leaves as in preceding; flowers in terminal corymbose cymes. Pine-land. Spring and Summer. *H. aspalathoides (var. of preceding?)*

104. Theaceae (Camelliaceae), *Camellia* Family.

Shrubs and trees with alternate, simple, pinnately-veined leaves, without stipules; flowers regular, hypogynous; sepals and petals 5, rarely 4-7 or more; stamens numerous, more or less coherent at the base into 1, 3 or 5 sets, opposite the petals; ovary 2-5 celled, with 2-many ovules in each cell; styles 2-5, distinct or united; carpels 2-5 celled, seeds few.

1. Calyx of many imbricated sepals; stamens united at the base, some of the interior distinct; styles united, stigmas 3-5. - - - *Camellia*
C. Japonica, Camellia. Flowers white or colored, solitary, terminal; stamens about 50, mostly transformed into petals. Cultivated.
- C. Thea, Tea-plant.* Leaves 2-8 times longer than broad; flowers axillary, white. Cultivated.
1. Calyx simple, sepals 5, unequal; ovules 4-8. - - - 2
2. Deciduous; flowers white, nearly sessile; sepals subtended by 2-4 bractlets; petals 5, nearly distinct; stamens numerous, in 5 sets, each set adhering to one of the petals; ovary 5-celled; ovules 6-8 in each cell; carpels blunt, seeds flat, angled. - *Franklinia*
F. Alsatamaha (Gordonia pubescens). Near the coast. Spring.
2. Evergreen; flowers white, long-peduncled; petals 5, united at the base; stamens numerous on 5 disk-like lobes, confluent at the base; ovary 3-5 celled; ovules 4 in each cell; capsule pointed, seeds 4 or 2 in each cavity, each with a membranous wing. - *Gordonia*
G. Lasianthus, Loblolly-Bay. Swamps and hammocks. Summer.

105. Turneraceae, *Turnera* Family.

Herbs or shrubs with alternate, exstipulate leaves and solitary, axillary flowers; calyx 5-lobed; petals 5, inserted on the calyx; stamens 5, inserted below the petals; ovary free, 3-carpelled, 1-celled; styles 3; ovules

numerous in 2 rows on the 3 parietal placentae; capsule 1-celled, 8-valved.

Herbs simple or sparingly branched, with yellow flowers; stigmas 8, 2-

cleft, brush-like. In pine-land. Spring and Summer. - Piriqueta

P. viridis. Glabrous; leaves linear.

P. Caroliniana (fulva). Hirsute with fulvous hairs, and stellate-tomentose.

106. Cistaceae. Rock-rose Family.

Herbs, woody at the base, or low shrubs, with simple leaves and regular flowers; sepals 5, of which the 2 outer ones are smaller or wanting; petals 5, 3, or none; stamens few or many, hypogynous; ovary 1-several celled; style single, stigma entire or 3-lobed; capsule 3-5 valved, few or many seeded.

1. Flowers with 5 petals, or apetalous;—leaves with flat or revolute blades; flowers of the first or of both kinds; petals fugacious, yellow: styles short or obsolete. Spring and Summer.

Helianthemum, Frost-weed. Rock-rose

H. Carolinianum. Hirsute; leaves mostly at the base, obovate, ciliate; flowers few, all alike. Dry sandy soil.

H. corymbosum. Tomentose; leaves obovate to oblong, pale beneath; flowers in a terminal fastigiate cyme; those with petals have 25-30 stamens and 20 ovules; those without petals have 3-6 stamens and 9 ovules; calyx of both pubescent. Dry sand towards the coast.

1. Flowers with 3 petals, persistent;—leaves numerous; flowers small, greenish or purplish; stamens 3-12; stigmas 3; capsule 3-1 called about 6-seeded. Summer. - - -

L. minor. More or less pubescent; stem-leaves oval or oblong, ciliate; flowers red-purple; outer sepals longer than the inner. Dry sand.

L. villosa (major). Villous-pubescent; stem-leaves oblong-elliptic; flowers green-purple; outer sepals about as long as the inner. Dry sand.

107. Violaceae, Violet Family.

Herbs or shrubs with simple, alternate or basal, stipulate leaves, and perfect, irregular flowers, solitary or clustered; calyx of 5 sepals; hypogynous corolla of 5 petals; stamens syngenesious or connivent; style 1, ovary 1-celled; fruit a loculicidal capsule, 8-valved and many-seeded.

Acaulescent or caulescent herbs with solitary, nodding flowers on axillary scapes or peduncles, late in the season succeeded by cleistogamous flowers bearing fruit; the lowermost petal saccate or spurred, and the lowermost two stamens appendaged, Viol.

- | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|
| 1. Acanthocephalus | - | - | - | - | - | - | 2 |
| 1. Canthocephalus | - | - | - | - | - | - | 8 |
| 2. White | - | - | - | - | - | - | 3 |
| 2. Blue, purple, lilac | - | - | - | - | - | - | 4 |

2. Leaves oval to ovate-oblong, the base truncate or subcordate, the margins entire or crenulate; sepals acuminate; petals veined with purple, almost beardless. Moist soil. Spring. - *V. primulaefolia*
3. Leaves lanceolate, decurrent upon the petiole, the margins obscurely crenulate; petioles longer than the blades; scapes not longer than the leaves; sepals acuminate; petals beardless, the lower three with purple veins. Moist soil. Spring. - *V. lanceolata*
3. Leaves linear, mucronate, the margins obscurely crenate; petioles one-third as long as the blades; scapes shorter than the leaves, with long filiform scales; petals small and narrow, with brown veins. Moist pine-land. Spring. - *V. vittata*
4. Petals not bearded;—leaves roundish, pedately divided into 5-11 linear lobes; corolla blue, pale-lilac, rarely white. Dry woods. Spring. *V. pedata*
4. Petals bearded, - - - - - 6
5. Leaves lobed, - - - - - 6
5. Leaves undivided, - - - - - 7
6. Leaves 5-7 lobed;—leaves spreading; petioles first short, those of later leaves longer; blades cordate-ovate, at first entire, the later dentate or lobed, still later 7-lobed with the middle lobe the largest and the lowermost lobes runcinate; scape longer than the leaves; sepals lanceolate, whitish margined; corolla light-purple, petals veined. Pine-land. Winter and Spring. *V. septemloba*
6. Leaves 8-lobed;—leaves long-petioled, at first cordate-ovate, later with truncate base and obtuse apex, margins obscurely crenate; scapes not longer than the leaves; sepals acuminate; corolla deep purple, large, the lateral petals copiously bearded. Dry pine-land near the coast. Winter and Spring. - *V. vicinalis (insignis)*
7. Leaves long-petioled, mostly upright, reniform to cordate-ovate, obtusely serrate, the sides at the base rolled-in when young; corolla blue, lateral and often the lower petals bearded. Low ground. Winter and Spring. - *V. cucullata*
7. Leaves cordate, crenate; flowers blue or variegated with white; fragrant. Cultivated. - *V. odorata, Sweet violet*
8. Stem simple, erect; cauline leaves short-petioled, hastate, denticulate; basal leaves, if any, cordate; corolla small, yellow, lateral petals bearded, the lowest with purple veins; spur very short. Sandy woods. Spring and Summer. - *V. hastata*
8. Stem branching; upper leaves oblong-ovate, lower ones ovate-cordate, deeply crenate; stipules large; flowers blue-whitish-yellow, but one of the colors may strongly predominate, or blue may be intensified to purple, violet or purple-black. Cultivated. *V. tricolor, Pansy*

108. Passifloraceae, Passion Flower Family.

Herbs or shrubs, often climbing by means of tendrils from the axils of the leaves; with alternate, mostly stipulate leaves, and usually showy, axillary flowers; sepals 4-5, more or less united; petals 4-5, together with a filamentous crown inserted in the throat of the calyx; stamens 4-5, monadelphous below, and enclosing the stalk of the ovary; ovary 1-celled, with 3-4 parietal

placentae; styles 3-4, club-shaped; fruit fleshy, berry-like; seeds numerous, included in a pulp.

Leaves entire, lobed or parted; flowers solitary or clustered; calyx sometimes colored; petals rarely wanting; crown-flaments in rows; anthers versatile; stigmas capitate; seeds flattened.

Passiflora, Passion-flower.

- P. *incarnata*, *May-pop*. Trailing or climbing vine; leaves palmately 3-5 lobed with two glands at the base of the blade; peduncles 3-angled, bearing an involucre of 3 ovate bracts; sepals with a horn near the apex, greenish outside, tinged with lavender inside; petals pale-lavender; filaments in about 5 rows, lavender striped with dark-purple and white; berries oval, yellowish, large. Open and cultivated ground. Summer.
- P. *lutea*. A slender climber with 3-lobed leaves, the petioles without glands; peduncles without involucre; corolla greenish-yellow, filaments in 3 rows berries oval, purple. Woods and thickets. Summer.
- P. *quadrangularis*, cultivated as *Granadilla-vine*, has white, violet and red flowers, and large pale yellow fruits with edible pulp.—P. *Pfordtii* with bright blue flowers is hardier.

109. Opuntiaceae (Cactaceae), *Cactus Family*.

Succulent shrubby plants, commonly provided with spines arising from bristly areolae; stems globose, columnar (round or angular), or flattened (jointed or continuous); leaves scale-like or wanting; flowers usually large, solitary, terminal or lateral; sepals and petals similar, in several rows; stamens numerous, in rows, inserted on the base of the petals; ovary inferior, 1-celled, with several parietal placentae; style 1, with stigmas as many as placentae; fruit a fleshy berry, rarely dry, smooth or spiny; seeds numerous.

Stems jointed, joints flat or more or less terete; leaves scale-like or fleshy; spines barbed (in one species wanting); flowers lateral, arising from spine-bearing areolae; calyx spreading, corolla rotate, stigma 5-8 lobed, fruit pear-shaped.

- Opuntia, *Prickly Pear*
- O. *Opuntia (vulgaris)*. Stems ascending or prostrate; joints flat, almost twice as long as wide; bristle-cushions remote, with solitary short spines and often without them; bristles few; flowers pale-yellow; fruit nearly smooth. Dry sandy soil. Summer and Fall.
- O. *Pes-Corvi*. Stems spreading or prostrate; joints nearly terete, many times as long as wide, easily separable; bristle-cushions numerous, the upper ones armed with 1-3 slender spines; flowers yellow; fruit small, bristly. Sandy places along the coast. Early Summer.
- O. *tuna, Tuna-cactus*. Cultivated for the juice of its purplish-red fruits; flowers yellow.

Some species of the following genera are cultivated:

- a. *Echinocactus*, almost globular, strongly ribbed, flowers terminal.
- b. *Cereus*, from almost globular to columnar; branching, stout, slender, climbing or creeping; ribbed or angled. The species *C. grandiflorus* and *C. nycticalus* are known as the fragrant *Night-blooming Cereus*.

- c. *Echinocereus*, like the columnar forms of *Cereus*, but smaller.
 d. *Phyllocactus*, mostly epiphytes with flat joints. To this genus belongs *Epiphyllum truncatum*, *Crab-cactus*, with red flowers growing horizontally from the truncated ends of the younger joints. Winter and early Spring.—Also *Phyllocactus latifrons*, *Queen Cactus*, with creamy white flowers and reddish tube, blooming at night.

110. Begoniaceae, *Begonia* Family.

Herbs or shrubby plants with alternate, commonly inequilateral, toothed or lobed leaves; flowers in cymes, monöcious; the sterile ones with 2-more sepals, 5 or less minute petals, and numerous stamens; the fertile ones with calyx and corolla, inferior 1-several celled ovary, the styles partly united, and twisted or coiled stigmas; fruit a winged capsule.

Flowers with colored perianth, stamens many; ovary winged, 3-celled; style short, stigmas spirally twisted; capsule membranous, unequally 3-winged. Species all cultivated, - - - *Begonia*

111. Proteaceae, *Protea* Family.

Herbs, shrubs or trees, mainly with alternate, simple or compound leaves, and perfect flowers; perianth of 4 partially united sepals; stamens 4, adnate to the sepals; ovary superior, 1-celled, and ovules 1-2; fruit often a follicle.

Shrubs or trees with pinnately parted leaves, and flowers in terminal racemes; tube of perianth cleft with style protruding; anthers sessile and ovary stalked, - - - *Grevillea*
G. robusta, *Australian Silk Oak*. Evergreen tree with bipinnately parted leaves and narrow, more or less incised segments; racemes long. Cultivated.

112. Daphnaceae (Thymeleaceae), *Mezereon* Family.

Mostly shrubs with exstipulate, entire leaves; flowers with tubular or bell-shaped 4-5 cleft calyx, bearing 4-5 scales within; corolla wanting; stamens as many or twice as many as the calyx-lobes and in two rows; ovary usually 1-celled, 1-ovuled; style 1; fruit a drupe.

Leaves alternate; flowers appearing before the leaves; stamens 8, exserted, - - - *Dicra*, *Leather-wood*
D. palustris. Slender shrub with oval to obovate leaves on short petioles; flowers commonly 8 in a raceme, lemon-yellow; drupe red. Riverbanks. Early Spring.

113. Lauraceae, *Laurel* Family.

Trees and shrubs with exstipulate simple leaves, and

perfect, polygamous, or dioecious flowers; perianth imbricated in two rows, of 6, rarely 4-10 parts; stamens 6 or more in 2-4 rows; ovary free, 1-celled, 1-ovuled; style simple, stigma entire or 3-lobed; fruit a drupe with solitary seed.

1. Deciduous; flowers mostly dioecious, stamens 9 in 3 rows;—leaves alternate; flowers yellowish green, appearing before the leaves, racemose; the third row of stamens with two orange-colored glands at the base, - - - - - *Sassafras*
S. sassafras (*officinalis*). Small tree with oblong, mostly 3-lobed leaves; drupe red or orange. Old fields. Spring.
1. Evergreen; flowers perfect, stamens 12 in 4 rows, - - - - - 2
2. Leaves alternate; flowers yellowish green, cymose; the third row of stamens (or staminodia) with two glands near the base, those of the fourth row reduced to staminodia, - - - - - *Persea*
P. borbonia (*Carolinensis*), *Red Bay*, *Laurel Tree*, *Tsarwood*, *Mahogany*. A tree with elliptic leaves and axillary flowers in panicle cymes; fruit dark blue or black. Woods on riverbanks, and planted. Summer.
P. pubescens (*Carolinensis*, var. *palustris*). Tall shrub with narrowly elliptic leaves, and axillary flowers in peduncled cymes; drupe dark-blue with a thin bloom. Ponds and river-hammocks. Summer.
 Here belongs the *P. gratissima*, *Alligator-pear* or *Avocado* (the *Ahuacate* of Cuba); cultivated in South Florida for the large brown or purple fruit.
3. Leaves alternate; flowers whitish; planted.
Cinnamomum Camphora, *Camphor-tree*

114. Melastomaceae, *Meadow Beauty Family*.

Herbs, shrubs and trees with opposite, exstipulate leaves and mostly showy, perfect flowers; calyx 3-6 lobed; petals 3-6, inserted with the 3-12 stamens on the throat of the calyx; anthers appendaged; ovary free, 2-many but often 4-celled, with numerous ovules; style 1; fruit berry-like or capsular, 2-many celled, many-seeded.

- Herbs with horizontal rootstocks; leaves usually 3-5 veined; flowers solitary or in terminal cymes; calyx urn-shaped, sepals and petals 4; stamens 8, exserted; ovary 4-celled; capsule 4-celled, seeds rough, coiled or bent, - - - - - *Rhexia*, *Deer-Grass*
1. Anthers short, oblong, erect, not spurred, - - - - - 2
 1. Anthers long, linear, curving upward, spurred - - - - - 4
 2. Corolla purple, pink, or white, - - - - - 3
 2. Corolla yellow;—stem 4-angled, simple, bristly; leaves smooth, bristly serrulate, the lower obovate, the upper lanceolate; flowers nearly sessile, numerous, small. Low pine-barrens. Summer. - - - - - *R. lutea*
 3. Calyx-tube glandular-bristly; upper surface of leaves smooth;—stem 4-angled, sparingly branched, smooth below; leaves ovate, bristly-serrulate; flowers solitary or in cymes, purple. Pine-barrens. Summer. - - - - - *R. serrulata*

3. Calyx-tube smooth; upper surface of leaves bristly;—stem 4-angled, branches ascending, nearly smooth; leaves broadly ovate, bristly-serrulate; flowers in cymes, purple or deep pink. Sandy swamps. Summer. R. ciliosa
4. Neck of the mature calyx as long as the globose capsular portion, or longer; leaves lanceolate, with 8 prominent veins;—stem villous-hirsute, simple or branched, nearly terete; flowers in cymes, pale or deep-purple. Sandy swamps. Summer and Fall. R. Mariana
4. Neck of the mature calyx shorter than the globose capsular portion. 5
5. Stem sharply angled or 4-winged;—leaves lanceolate, with 8 principal and 2 marginal veins; flowers in panicked cymes; calyx smooth, petals purple. In pine-barren ponds. Summer. R. stricta
5. Stem round or nearly so 6
6. Calyx-tube smooth or nearly so;—leaves oblanceolate to linear; flowers in cymes; petals white to pale-purple. Dry or moist sandy soil. Summer. R. lanceolata
6. Calyx-tube densely glandular-pubescent;—leaves lanceolate to linear, almost entire, leathery; flowers in cymes; petals purple. Moist pine-land. Summer. R. glabella

115. Lythraceae, Loosestrife Family.

Herbs, shrubs or trees with exstipulate leaves and perfect flowers, solitary or in inflorescences; calyx tubular, 4-7 toothed, the sinuses often appendaged; petals as many as the teeth of the calyx, and inserted in its throat, sometimes wanting; stamens as many as the petals, or 2-4 times as many, inserted below the petals; ovary 2-6 celled, free; style 1; fruit a capsule.

1. Calyx cylindrical, fluted;—herbs with angled stems and opposite or alternate entire leaves; flowers axillary or in terminal spikes or racemes; ovary 2-celled, Lythrum
- L. lineare.* With 4-angled branching stems and opposite, linear, sessile leaves; flowers dimorphous, pale-purple or pink. Marshes near the coast. Summer.
- L. lanceolatum.* With angled or slightly winged stem and strongly ascending branches; leaves chiefly alternate, elliptic, sessile; flowers purple; stamens included. Low ground. Summer.
1. Calyx campanulate or turbinate, 2
2. Herbs with inconspicuous flowers;—stem 4-angled, simple or branched; flowers solitary or cymose, axillary; calyx 4, often with 4 teeth in the sinuses; petals 4; stamens 4-8; ovary 2-4 celled. Ditches. Late Summer. Ammannia
- A. Koehnei* (latifolia). Leaves spatulate or oblanceolate; flowers 1-3, pinkish.
- A. coccinea.* Leaves linear to lanceolate; flowers 1-5, purplish.
2. Aquatic shrubs;—leaves opposite or whorled; flowers in axillary cymes, purple; calyx 4-7, with teeth in the sinuses; petals 4-7; stamens 10 or 8; ovary 8-6 celled; capsule 3-6 valved. Decodon
- D. verticillatus* (Nesaea verticillata), *Swamp Loosestrife*. The submerged

portion of the stem coated with spongy tissue; leaves lanceolate, often undulate. In marshes and ponds. Summer.

2. Shrubs or trees;—opposite or whorled branches, and mainly opposite leaves; flowers showy in terminal panicles; calyx 6; petals 6, crisped; stamens numerous; ovary 1-6 celled, capsule 3-6 valved; seeds flattened, winged above. Cultivated. - *Lagerstroemia*
L. Indica, *Crape-myrtle*. Petals purple, pink or white. Summer.

116. Punicaceae, Pomegranate Family.

Shrubs with opposite, entire, exstipulate leaves, and showy, perfect flowers; calyx 5-7 parted; petals 5-7, inserted on the throat of the calyx; stamens numerous in rows, with versatile anthers; ovary several-celled, inferior; style 1; ovules numerous; fruit a several-celled berry with a leathery coat, and membranous septa; seeds in a watery pulp.

Leaves oval to oblong, short-petioled, deciduous; peduncles axillary, 1-several flowered; calyx-lobes shorter than the tube; petals scarlet; berries subglobose, one-half to one dm. in diameter. Late Spring. Cultivated in single and double varieties.

Punica granatum, *Pomegranate*

117. Myrtaceae, Myrtle Family.

Shrubs or trees with opposite or alternate, exstipulate, punctate leaves, a vein running close to and parallel with the margin; flowers perfect; calyx 4-5 lobed; petals as many as the calyx-lobes, or wanting; stamens usually numerous with filaments distinct or partially united; ovary inferior or partly so, 1-many celled; style and stigma 1; ovules 1-numerous; fruit a berry or (in *EUCALYPTUS*) a capsule.

Calyx 5-lobed, petals 5; stamens exserted, distinct. Cultivated. - 1

1. Leaves opposite; flowers solitary, axillary. - 2

2. Leaves alternate; flowers in dense lateral cymes;—shrub with thick, lanceolate, evergreen leaves; flowers with numerous crimson stamens. Summer. - *Callistemon lanceolatum*, *Bottle-Brush*

1. Leaves alternate, flowers 3-many, usually white, in umbels, the latter solitary and axillary, or paniced near the end of the branchlets;—tall trees with simple, entire leaves, broadly ovate to lanceolate, acuminate; stamens numerous, usually distinct. Planted in several species. - *Eucalyptus*, *Gum-tree*

2. Sepals equal;—evergreen shrub with ovate, shining leaves; flowers white or rose-tinged. Spring. - *Myrtus communis*, *Sweet Myrtle*

2. Sepals unequal;—tall shrub with oblong leaves in which the lateral veins are prominent; berry pulpy, edible. - *Psidium Guajava*, *Guava*

A handsome tree of this family is *Eugenia caryophyllata* (*Caryophyllus aromaticus*), the dried flower-buds of which are known as *cloves*; cultivated in the West and East Indies.

118. *Epilobiaceae (Onagraceae), Evening-primrose Family.*

Herbs, rarely shrubs, with alternate or opposite, exstipulate, simple leaves; flowers usually perfect, often with an elongated calyx-tube; calyx 2-6 lobed, petals 2-9; both calyx and corolla usually in 4's or the latter sometimes wanting; stamens as many, or twice as many as the petals; ovary 1-6, usually 4-celled, inferior; style 1, stigma capitate or lobed; fruit a capsule, sometimes nut-like; seeds sometimes appendaged.

1. Fruit a dehiscent capsule - - - - - 2
1. Fruit nut-like, indehiscent;—herbs with alternate leaves; flowers in terminal spikes or racemes; calyx-tube prolonged, the limb 3-4 lobed; petals 3-4, unequal; stamens 6-8; stigma 4-lobed, surrounded by a cup-like border; fruit 1-4 seeded. - - - - - Gaurs
G. angustifolia. Stem simple or sparingly branched, pubescent; leaves spatulate to linear, often blotched with purple; petals white or pink; fruit 4-angled, sandy soil. Summer.
2. Calyx-tube not prolonged beyond the ovary, - - - - - 3
2. Calyx-tube prolonged beyond the ovary, - - - - - 5
3. Stamens 4 in 1 row, - - - - - 4
3. Stamens 8-12 in 2 rows;—marsh-herbs or shrubby plants with alternate leaves; flowers axillary; calyx 4-6 lobed; petals 4-6, white or yellow; ovary 4-6 celled, - - - - - Jussieu
J. leptocarpa. Stem erect, branched, bristly-hirsute; leaves lanceolate, nearly sessile, hairy; calyx-lobes mostly 6, as long as the petals, corolla yellow. Marshes. Summer.
4. Stems creeping or floating; leaves opposite;—succulent herbs with small, axillary, sessile flowers; calyx-tube 4-lobed; stamens very short; style almost wanting. Late Spring and Summer.
Isaardia (Ludwigia), Marsh Purslane
I. (L.) spathulata. Hairy; flowers without corolla. Around pine-land ponds
I. (L.) palustris. Smooth; petals reddish or wanting. Swampy places.
I. (L.) natans. Smooth; flowers with inconspicuous corolla. Marshes.
4. Stems erect or ascending; leaves alternate;—herbs with axillary or terminal 4-parted flowers. Summer and Fall. - - - - - Ludwigia
L. pilosa. Stem woody, much branched, pilose; leaves sessile, lanceolate or oblong; flowers in terminal spikes; petals mostly wanting. Ponds near the coast.
L. lanceolata. Stem stout, at length branched, smooth; leaves sessile, lanceolate; flowers small in all the axils; petals wanting. Pine-barren ponds,
L. hirtella. Stem slender, sparingly branched, hairy; leaves short, lanceolate, sessile; flowers solitary, peduncled, yellow. Pine-barren swamps.
L. virgata. Stem slender, sometimes branched; lower leaves oval, upper ones linear; flowers in interrupted racemes, yellow. Dry pine-land.
5. Leaves undulate or toothed; flowers in terminal spikes, sepals elongated; ovules in 2 or more rows, horizontal; capsule erect, tapering, - - - - - Onagra (Oenothera)

- O. biennis.** Stem stout, hirsute; leaves oblong to lanceolate; sepals slender, corolla bright yellow. Dry soil. Summer and Fall.
5. Leaves sinuate or pinnatifid; flowers mostly axillary; sepals deciduous; ovules in 2 rows, ascending; capsule narrowly-cylindric; seeds terete, crowned with a tubercle.

Oenothera, Evening Primrose

- O. laciniata (sinuata).** Stem ascending or diffuse, smooth or downy; leaves oval, oblanceolate to spatulate, sinuate-dentate or pinnatifid; seeds strongly pitted. Dry sandy soil. Spring and Summer.
- O. humifusa.** Stem with spreading branches near the base; basal leaves oblong-spatulate, pinnatifid; cauline ones lanceolate, undulate, toothed; seeds striate. Sand along the coast. Spring and Summer.
5. Leaves ovate, dentate; flowers drooping, axillary; calyx tubular-funnel form, colored, limb 4-lobed; petals 4; stamens 8, exserted, style long-exserted. Cultivated. Fuchsia
- F. coccinea.** With scarlet sepals and violet-purple petals;—**F. fulgens** with bright red flowers;—and other varieties.

119. Gunneraceae (Haloragidaceae), Water-Milfoil Family.

Aquatic herbs with alternate or whorled leaves, the submerged finely divided, the emersed entire or toothed; flowers perfect or monœcious, axillary or terminal.

1. Stems creeping, leaves toothed or the lower dissected; flowers perfect, minute, greenish, axillary; calyx 3-4 angled and lobed; petals none; stamens 3-4, included; ovary 3-4 celled, inferior; stigmas 3-4; fruit nut-like. In wet soil or in pools. Spring to Fall. *Proserpinaca*
- P. pectinata.** All leaves nearly alike; sepals ovate, erect.
- P. palustris** Leaves of two kinds; sepals triangular, ascending.
1. Stems commonly floating, leaves of two kinds; flowers monœcious, minute, axillary or in terminal spikes with the upper ones sterile, the intermediate perfect, and the lower ones pistillate; the sterile flowers with a 2-4 toothed or truncate calyx, 2-4 petals and 4-8 stamens; the fertile flowers with a 4-grooved calyx, minutely toothed; 4 small petals or none, and a 4-celled ovary with 2-4 often plumose stigmas. In ponds and slow streams. Summer. *Myriophyllum, Water Milfoil*
- M. verticillatum.** Slender; submerged leaves in whorls of 3 or 4, crowded, the emersed pectinate-pinnatifid; sterile flowers with 4 purple hooded petals and 8 stamens; fruit smooth.
- M. heterophyllum.** Stout; submerged leaves crowded, with hair-like segments, the emersed in whorls of 3 to 6, linear to lanceolate, serrate; sterile flowers with 4 oblong petals and 4-6 stamens; fruit roughened.

120. Nyssaceae (Cornaceae), Dogwood Family.

Trees or shrubs with exstipulate simple leaves; flowers in cymes or heads; calyx 4-5 toothed; petals 4-5, or wanting; stamens 4-10, inserted with the petals at the base of an epigynous disk; ovary inferior, 1-4 celled; style 1, stigma entire or lobed or cleft; ovules solitary in each cell; fruit a drupe with acid pulp.

1. Flowers dioecious or polygamo-dioecious; stigma lateral;—leaves alternate; flowers greenish; staminate numerous, with 5-several parted calyx, 5-many petals and stamens, a large disk and rudimentary ovary; fertile flowers fewer with 5-toothed calyx, no petals, rudimentary stamens, a swollen disk and 1-celled ovary; drupes solitary or clustered. In river-swamps. Spring.

Nyssa, Tupelo

N. Ogeche (*capitata*), *Ogeche Lime*. Tree with leaves abruptly pointed; staminate flowers in heads and pistillate ones solitary; drupes red, pedicel shorter than the fruit.

N. aquatica (*uniflora*, Wang), *Tupelo Gum*. Tree with leaves acute or acuminate; staminate flowers in heads and pistillate ones solitary; drupes dark purple, pedicel longer than the fruit.

1. Flowers perfect; stigma terminal. - - - 2
2. Flowers in dichotomous cymes without involucre;—leaves opposite; calyx 4-toothed or lobed; petals 4, white; stamens 4; ovary 2-celled; drupe with thin pulp. Low woods along the river. Spring. - - - *Svida, Dogwood, Cornel*
- S. (Cornus) stricta*. Twigs reddish brown, leaves smooth beneath, drupes pale blue.
- S. (Cornus) microcarpa*. Twigs brownish, leaves with curled hairs beneath, drupes light blue.
- S. Amomum (Cornus sericea)*. Twigs purplish, leaves silky or rusty-pubescent beneath; calyx-lobes as long as the tube, drupes pale blue.
2. Flowers in a head subtended by a large white or pinkish involucre;—leaves opposite, prominently veined; calyx 4-lobed; petals 4, greenish; stamens 4; ovary 2-celled; drupes red, clustered. In oak woods. Spring. - - - *Cynoxylon*
- C. floridum (Cornus florida)*, *Flowering Dogwood*. Leaves pubescent; stamens exserted.

121. Hederaceae (Araliaceae), Ivy Family.

Herbs, shrubs, trees or vines, cultivated for ornamental or, as the Ginseng, for economical purposes. Flowers perfect or polygamous; calyx 5-toothed or truncate; petals and stamens 5-10, both inserted in the margin of an epigynous disk, alternate; ovary 2-5 celled, inferior; styles 2-5, sometimes united; ovules solitary; fruit a berry or drupe.

1. Vines with simple leaves;—flowers 5-parted, styles united, fruit a berry, - - - *Hedera*
- H. Helix, Ivy*. Leaves evergreen, 3-5 lobed or cleft; corolla yellowish green.
- I. Herbs, shrubs or trees with compound leaves, - - - 2
2. Scapose;—herbs with simple scapes topped by a whorl of digitately compound petioled bracts; flowers inconspicuous, in simple terminal umbels; calyx truncate; petals 5, greenish; ovary 2-3 celled; styles 2-3; fruit drupe-like, red or yellowish, - - - *Panax*
- P. quinquefolium, Ginseng*. Whorl of 3-4 long-petioled bracts; leaves 5-7 foliate; berries bright crimson.

- P. excelsum* and *P. plumatum* with ferny leaves, or *P. sareum* and *P. victorise* with variegated leaves, are fine house-plants.
2. *Caulescent*;—herbs or shrubs with pubescent or prickly-armed foliage; leaves pinnately or ternately decomposed; flowers white or whitish, 5-parted, in racemose or paniculate, or compound umbels; berries black. - - - - - *Aralia*
- A. filicifolia* with fern-like leaves, *A. Guilfoylei* with variegated foliage, and *A. papyrifera*, the *Chinese rice-paper plant*, with its large leaves belong to this genus.

122. *Ammiaceae* (*Umbelliferae*), *Carrot* or *Parsley* Family.

Herbs with hollow stems and generally alternate, more or less dissected leaves; flowers umbellate, either compound, or the umbels contracted into heads, perfect or polygamous; umbel and secondary umbels (umbellets) often subtended by an involucre and involuclals (bracts and bractlets); calyx 5-toothed or with a mere border; petals 5 and stamens 5, inserted together on an epigynous disk; ovary inferior; styles 2, often united and thickened below; fruit dry (*CREMOCARP*), composed of 2 indehiscent carpels (*MERICARPS*), suspended from a filiform axis (*CARPOPHORE*), and cohering by their inner face (*COMMISSURE*); each with 5 primary and often with 4 secondary ribs; the intervening spaces (*INTERVALS*) usually containing channels (*VITTAE*) filled with oil; seeds solitary.

1. Flowers in simple umbels, or the umbels forming an interrupted raceme;—herbs with creeping stems in damp or wet ground; leaves palmately lobed or peltate; flowers small, white; involucre absent. Early Summer. - - - *Hydrocotyle*, *Marsh Pennywort*
- H. umbellata*. Leaves peltate, crenate-lobed; umbels many-flowered; fruit notched.
- H. verticillata* (*interrupta*). Leaves peltate, shallowly crenate; umbels few-flowered, forming an interrupted raceme; fruit rounded or truncate.
2. Flowers in capitate long-peduncled umbels;—herbs with creeping stems in sand or moist pine-land; leaves palmately veined, with long petioles clustered at the nodes; flowers small, white; bracts of the involucre 2-4. Early Summer. - - - *Centella*, *Pennywort*
- C. (Hydrocotyle) repanda*. Leaves ovate to cordate, umbels 2-4 flowered.—A form with short petioles is var. *Floridana*.
3. Flowers in dense capitate or elongated spikes;—herbs with erect or creeping stems and mostly spiny-toothed leaves; calyx-lobes acute or spinous; petals inflexed; fruit slightly flattened laterally. Spring and Summer. - - - *Eryngium*, *Button Snake-root*
- E. Baldwinii*. Stems with slender branches at the base; basal leaves oblong, long-petioled; stem-leaves 3-parted with linear segments; bracts and bractlets subulate; fruit tuberculate. In sandy soil.
- E. floridanum*. Stems sparingly branched; basal leaves narrowly oblong,

long-petioled; upper-leaves long-linear, sessile; bracts and bractlets linear, sharp-pointed; fruit crowned with the calyx. In brackish marshes.

E. aromaticum. Stems with ascending branches at the base, corymbose near the top; leaves pinnately parted; setaceous to spine-tipped; bracts 3-cleft, bractlets 3-toothed; fruit crowned with the calyx. In dry pine-land.

E. aquaticum (yuccafolium). Stems corymbose above; leaves linear, bristly on the margins, their bases folded around the stem; bracts and bractlets lanceolate, strongly veined; fruit scaly. In low ground.

1. Flowers in compound umbels, - - - - - 2
2. Fruit smooth or slightly roughened, - - - - - 3
3. Fruit with a row of barbed bristles on the winged, secondary ribs;—caulescent herbs with rough-pubescent foliage; leaves pinnately decompound; involucre and involucrels various or wanting; calyx truncate; petals white, often unequal; fruit dorsally flattened, - - - - - *Baucus, Carrot*

D. Carota. Stems channeled; flowers white, the central one of the umbel often purple. Cultivated.

3. Fruit laterally flattened; wingless, - - - - - 4
3. Fruit dorsally flattened, - - - - - 8
4. Calyx-limb minute or none, - - - - - 5
4. Calyx-limb 5-toothed;—herbs with tuberous roots and pinnately compound or decompound leaves; bracts few or none, bractlets small, several; petals white, the tips inflexed; fruit slightly flattened. In marshes. Summer.

Cicuta, Water Hemlock or Poison Hemlock

C. maculata. Stems tall, with purple ridges, branching above; leaves twice or thrice compound, petioles of lower leaves long, those of upper leaves short and dilated; bracts linear-subulate, deciduous; rays numerous, unequal; flowers white; fruit oval or ovoid, not constricted at the commissure; vittae large.

C. Cartisii. Much like preceding, but rootstock stouter, and fruit orbicular, constricted at the commissure.

5. Leaves dissected into narrow segments;—slender branching herbs; no bracts and only a few narrow bractlets; petals white; fruit slightly flattened, tuberculate; seeds angled, *Spermolepis (Leptocaulis)*

S. (L.) divaricatus. Stems with slender branches; leaves twice or thrice pinnately parted. Sandy soil. Spring.

5. Leaves pinnately or ternately compound, leaflets toothed, pinnatifid or dissected, - - - - - 6
6. Calyx-teeth obolete, - - - - - 7

6. Calyx-teeth acute;—caulescent herbs with pinnately-compound leaves; involucre and involucrels of narrow bracts; petals white; fruit stout; seeds 5-angled, - - - - - *Slum, Water Parsnip*

S. ciutaefolium (lineare). Leaflets 7-17, sharply serrate; submerged leaves, sometimes finely dissected; umbels peduncled. In shallow water. Summer and Fall.

7. Petals concave, not emarginate;—caulescent herbs with pinnately or ternately decompound leaves, and toothed or incised leaflets; involucre present or wanting; petals white; seeds terete or slightly angled, - - - - - *Apium*

- A. *Ammi* (*leptophyllum*), *Marsh Parsley*. Leaves ternately divided; fruit oval, prominently ribbed. Sandy soil. Spring and Summer.
- A. *graveolens*, *Celery*. Leaves on long petioles, pinnately divided; segments broad-cuneate, incised; upper-leaves 3-parted and cut-lobed; involucre wanting. Cultivated.
7. Petals emarginate, inflexed;—caulescent herbs with pinnately or ternately decomposed leaves; involucre various; petals white; seeds sub-terete. Cultivated. - - - *Carum*
- A. *petroselinum*, *Parsley*. Leaf-segments numerous, wedge-ovate to oblong, incised; bracts few or none, bractlets subulate.
- C. *carvi*, *Caraway*. Leaf-segments numerous, linear; bracts 1 or none, bractlets none; fruit oblong, aromatic.
8. Ribs prominent and the lateral ones broadly winged;—caulescent herbs, strongly scented; involucre and involucels present or wanting; petals white or greenish, broadest above the middle. *Angelica*
- A. *dentata*. Stems simple or branching above; leaves glabrous, ternately decomposed, on long petioles; leaflets oblong to oblanceolate, incised-serrate; umbels few or solitary; rays 5-12; oil-tubes about 20. Dry pine-land. Summer.
8. Ribs thin and the lateral ones winged;—caulescent marshy herbs with smooth foliage; bracts and bractlets 5-6; flowers white. Summer and Fall. - - - *Oxypolis* (*Tiedemannia*)
- O. *filiformis* (*T. teretifolia*). Stems simple or branched above; the leaves reduced to elongated, hollow, jointed phyllodes; bracts subulate; rays slender, 6-16.
- O. *ternata*. Stems somewhat branched; leaves entire or divided into 3 linear leaflets; rays very slender.
- O. *rigidior*, *Cow-bane*. Stems simple or branched; leaves pinnately divided; leaflets 3-9, narrow; rays 7-25.

123. *Monotropaceae, Indian Pipe Family.*

Herbs, saprophytic on decayed vegetable matter, or parasitic on roots; the scape-like stems solitary or clustered; leaves reduced to scales, which are often imbricated; flowers usually perfect, solitary, nodding; sepals 2-6, imbricated; petals 3-6, distinct or partially united, rarely wanting; stamens 6-12, distinct or united at the base; ovary superior, 1-6 celled; pistil 1, ovules numerous; fruit a capsule; seeds minute.

Monotropa uniflora. White or pink, succulent, wax-like herbs, turning slate-colored in drying, usually found in clusters; flowers solitary, nodding; sepals 2-4; petals 5-6, with stiff hairs on the inside; stamens 10-12, with peltate anthers; ovary 5-celled, confluent with the calyx-disk beneath; stigma funnelliform; capsule 5-celled, obtusely angled. In moist woods. Late Summer and Fall.

124. *Ericaceae, Heath Family.*

Herbs, shrubs or trees with alternate, opposite or whorled, exstipulate leaves and perfect flowers; sepals and

petals 4-7, distinct or partially coherent; stamens as many or twice as many as there are petals or corolla-lobes; filaments usually distinct, with the anthers often awned; ovary free, 2-6 celled, with styles united; ovules numerous; fruit a capsule.

1. Corolla polypetalous;—evergreen branching shrubs, with alternate, leathery leaves and 6-7 parted flowers in terminal racemes or corymbs; calyx often sticky, - - - - - *Bejaria*
B. racemosa. Leaves oblong to oval, glabrous; corolla white. Sandy soil. Summer.
1. Corolla monopetalous, - - - - - 2
2. Corolla funnelliform;—shrubs with alternate deciduous leaves, and 5-parted flowers in terminal clusters. Cultivated and in hampocks, - - - - - *Asalea*
A. nudiflora. Flowers white to pink, appearing with or before the leaves; young leaves pubescent; pedicels and capsules strigose; corolla-tube pilose.
A. serrulata. Flowers white, appearing after the leaves; leaves smooth, serrulate with bristle-tipped teeth; pedicels and corolla-tube glandular-hirsute.
2. Corolla salverform;—creeping evergreen shrubs with alternate leaves; 5-parted flowers perfect or dioecious in axillary clusters; calyx subtended by several bracts, *Epigaea, Trailing Arbutus*
E. repens. Bright green foliage and white or pink corolla nearly twice as long as the calyx.
2. Corolla subglobose, urceolate or cylindrical, - - - - - 3
2. Corolla cup-shaped or rotate, - - - - - 4
2. Corolla campanulate;—shrubs with alternate deciduous leaves and 5-parted flowers in axillary, racemed clusters; anthers 2-awned at the apex. Sandy pine-land. Spring. - - - - - *Zenobia*
Z. cassinifolia (*Andromeda speciosa*). Lower surface of the leaves green; flowers white.
Z. (Andromeda) pulverulenta. Lower surface of the leaves glaucous; flowers white.
2. Calyx usually with several bracts and sepals distinct; corolla ovoid-cylindrical;—shrubs with alternate leaves and 5-parted flowers in one-sided racemes or axillary umbel-like clusters; anthers or filaments awned. Spring. - - - - - *Pieris*
P. (Andromeda) nitida, Fetter Bush. Evergreen; filaments 2-awned near the apex; flowers white to red. Low pine-land.
P. (Andromeda) Mariana, Stagger Bush. Deciduous; filaments 2-awned near the apex; flowers white or pinkish. Damp soil towards the coast.
2. Calyx without bracts; sepals often slightly united; corolla subglobose to urn-shaped;—shrubs with alternate leaves, sometimes persistent; flowers 4-6 parted, small, in racemes or panicles; anthers and filaments awnless. Early Summer. - - - - - *Xelisma*
X. (Andromeda) ferruginea. Evergreen shrub or small tree with scurfy twigs and under-side of leaves; very leafy; flowers white or pinkish. Pine-barrens.
X. (Andromeda) ligustrina. Deciduous shrub with smooth or pubescent leaves; flowers white. Margins of lakes and swamps.

3. Calyx with 1-2 bracts; sepals slightly united; corolla ovoid, urn-shaped or cylindrical;—shrubs with alternate leaves, sometimes persistent; flowers 5-parted, in one-sided racemes; anthers often awned at the apex. Margins of lakes and swamps. Spring. *Leucothoe*
- L. axillaris*. Evergreen shrub with minutely-downy twigs; racemes axillary; anthers awnless, 2-horned; flowers white.
- L. acuminata*. Evergreen shrub with hollow branches; racemes axillary, corymb-like, few-flowered; anthers gibbous near the base; flowers white.
- L. racemosa*. Deciduous shrub with smooth or minutely-downy twigs; racemes terminal, simple or branched; anthers 2-awned; flowers white.
4. Corolla with rounded lobes;—evergreen shrub or tree with showy, 5-parted flowers in terminal or axillary corymbs or umbels; the 5-lobed corolla with 10 cavities at the sides, in which the awnless anthers are lodged; the filaments straighten elastically at maturity. *Kalmia*
- K. latifolia*, *Calico Bush*, *Poison Laurel*. Leaves mostly alternate, dark green, shining; corymbs terminal; corolla white or pink, viscid, large. Shady riverbanks. Summer.
4. Corolla with acute lobes;—low evergreen shrub with hirsute foliage; leaves alternate, small, numerous; flowers pale or deep pink, similar to the preceding, usually solitary on slender pedicels, numerous. *Kalmiella*
- K. hirsuta*, *Wicky*. Much branched, hirsute; margins of the leaves revolute; calyx bristly; corolla rose-purple. Pine-barrens. Summer.

125. *Vacciniaceae, Huckleberry Family.*

Shrubs or small trees with alternate, simple, exstipulate leaves, often persistent, and perfect, regular flowers; calyx and corolla 4-5 parted; stamens twice as many as corolla-lobes; filaments usually flattened, and anthers sometimes 2-awned; ovary 2-10 celled, inferior; style 1; fruit a berry or drupe, pulpy.

1. Ovary 10-celled; fruit a berry-like drupe with 10 nutlets;—flowers 5-parted in axillary drooping racemes; corolla campanulate to tubular; anther-cells prolonged into terminal tubes. Spring. *Gaylussacia, Huckleberry.*
- G. dumosa*. Low shrub, glandular-pubescent; corolla campanulate, waxy white or pink; drupes black. Low sandy ground.
- G. hirtella*. Shrub, bristly-hispid, the tips of the hairs with minute glands; corolla broadly campanulate, white or pink. Sand.
- G. canadensis, Blue Tangle*. Shrub, minutely-downy; leaves sprinkled with resinous globules beneath; corolla globose-campanulate, green to purplish; drupes blue, glaucous.
1. Ovary 4-5 celled, or by false partitions 8-10 celled; fruit a many-seeded berry;—flowers 4-5 parted in terminal or axillary racemes or clusters; corolla campanulate, tubular or urceolate; anther-cells prolonged into terminal tubes. Spring. *Vaccinium, Blueberry*
- a. Evergreen, b
- a. Deciduous, c

- b. *V. nitidum*. Leaves glandular-toothed; sepals rounded; berries black;—racemes umbel-like; corolla rose-red to white. Pine-land.
- b. *V. myrsinites*. Leaves bristly-toothed; sepals acute; berries blue;—racemes very short or umbel-like; corolla white. Pine-land.
- c. *V. tenellum*. Flowers white, in umbel-like racemes, appearing after the leaves; leaves serrulate; corolla oblong-cylindric; berries black with bluish bloom. Low pine-land.
- c. *V. Elliotti*. Flowers reddish, few, in umbel-like racemes, appearing after the leaves; leaves ciliate-serrulate; corolla conic, berries black, small. Low pine-land.
- e. *V. corymbosum*, *Tall Blueberry*. Flowers white or pale-pink, in racemes, appearing before the leaves; leaves entire; corolla cylindric; berries deep blue, glaucous. Margins of ponds and swamps.

126. Armeriaceae (Plumbaginaceae), *Plumbago* Family.

Shrubs or acaulescent herbs with perfect regular flowers; calyx 4-5 toothed; corolla hypogynous, the 4-5 petals distinct or united; stamens 4-5, opposite the petals with the filaments distinct or united; ovary 1-celled, styles 5, distinct or united; fruit a utricle or achene, or capsular.

- 1. Shrub with alternate leaves, clasping; flowers 4-5 parted in terminal bracted spikes; calyx tubular, glandular; claws of petals united into a slender tube; styles united to near the top; fruit a capsule, ————— *Plumbago*, *Leadwort*
P. Capensis, a shrub with pale blue flowers; *P. coerules*, partly herbaceous, with blue flowers; and *P. coccinea*, also partly herbaceous but taller, with scarlet flowers, are cultivated species flowering in Summer.
- 2. Acaulescent herbs with basal leaves and branched scapes; flowers 5-parted, subtended by bracts; calyx funnelform, not glandular; claws of petals distinct or nearly so; styles distinct; fruit a utricle, ————— *Limonium* (*Statice*), *Sea Lavender*, *Marsh Rosemary*
L. Carolinianum (*S. Caroliniana*). Scapes erect, much branched; calyx-tube bristly to above the middle; corolla pale purple. Salt marshes. Late Summer.

127. Ebenaceae, *Ebony* Family.

Trees and shrubs with alternate, entire, exstipulate leaves, and inconspicuous, dioecious or polygamous, regular flowers, solitary or in cymes; calyx and corolla 3-7 lobed; stamens 3-4 times as many as the corolla-lobes, adnate to its tube; ovary 3-many celled, superior; styles distinct or united at the base; ovules 1-2 in each cell; fruit a fleshy berry, rarely a capsule.

- Flowers solitary or in axillary cymes; corolla urceolate to salverform; stamens 4-16 or more, reduced to staminodia in the fertile flowers; ovary 4-12 celled; styles 2-6, distinct; berry round or conic, subtended by the calyx. ————— *Diospyros*, *Perseimon*

D. Virginiana. Tree with deep-brown or black bark and ovate to elliptic, undulate leaves; calyx and corolla 4-lobed, the latter greenish, urn-shaped; staminodia 8, stamens mostly 16; berry globose. Old fields. Spring.

D. Kaki, Japanese Persimmon. Cultivated in several varieties.

128. Sapotaceae, Sapodilla Family.

Shrubs or trees, often spiny or thorny, mostly with a milky sap, and exstipulate, alternate, entire leaves; flowers perfect, in axillary clusters; calyx 4-12; corolla white, 4-several lobed, often appendaged at the sinuses; stamens as many as and opposite to the corolla-lobes, adnate to the tube; staminodia often conspicuous; ovary 4-12 celled, superior; ovules 1 in each cell; styles united; fruit a berry with nut-like seeds.

Shrubs or small trees; sepals unequal; sepals, corolla-lobes and stamens

5; corolla with appendages; staminodia 5, petal-like; berry

drupe-like. Spring and Summer.

Bumelia, Buck-thorn

B. recclinata. Decumbent or ascending, low, spiny shrub; leaves numerous, obovate, retuse at the apex, shining above and duller beneath, narrowed into petioles; fruit oval. Sandy soil.

B. tenax, Black Haw, Iron-wood. Shrub or small tree, thorny or unarmed; leaves numerous, obovate to oblong-elliptic, obtuse or retuse, slightly revolute, lower surface with silky pubescence, at first whitish but becoming tawny; short petioles; fruit obovoid. Thickets and sandy soil.

129. Oleaceae, Olive Family.

Trees or shrubs, rarely herbs, with erect or climbing stems and opposite, simple or pinnately-compound leaves without stipules; flowers regular; sepals 4 or more, partially united, or wanting; petals 2-6 distinct or partially united, or wanting; stamens 2-4, adnate to the base of the corolla; ovary 2-celled, superior; ovules 2 in each cavity; fruit a capsule, samara, drupe or berry; seeds commonly solitary or 2-4.

1. Flowers perfect, corolla present, leaves simple. - - 2

1. Flowers imperfect, corolla wanting or inconspicuous - - 5

2. Stamens more or less exserted;—trees or shrubs with evergreen leaves and small, fragrant flowers in axillary racemes or panicles; calyx 4-toothed; corolla white, tube short, 4-lobed spreading border; stamens 2; fruit a drupe, mostly 1-seeded. - *Olea, Olive*

O. (Osmanthus) Americana, Wild Olive. Racemes shorter than the leaves; flowers polygamous or dioecious; drupe ovoid, deep purple. Light soil near the coast. Spring.

O. fragrans, Tea Olive. A shrub with serrate leaves and flowers in axillary corymbs. Cultivated.

2. Stamens included, - - - - - 3

2. Corolla 4-parted, - - - - - 4

3. Corolla 5-6 parted;—climbing or erect shrubs with fragrant white or yellow flowers; calyx 5-8 lobed; corolla salver-shaped; stamens 2, ovary 2-celled, each cell with one ovule; fruit a double berry, 2-seeded. Cultivated. - *Jasminum, Jasmine*
J. Sambac, Arabian Jasmine. Flowers white; leaves opposite or ternate; climbing.
J. officinale (pesticum). Flowers white; leaves opposite, odd-pinnate; requires support.
J. grandiflorum, Spanish Jasmine. Flowers white; leaves opposite, pinnate; drooping.
J. revolutum, Italian Jasmine. Flowers yellow; leaves alternate, odd-pinnate; drooping.
J. odoratissimum, Madeira Jasmine. Flowers yellow; leaves alternate, odd-pinnate; erect.
4. Corolla salverform, tube longer than the lobes;—shrubs with the fragrant flowers in a terminal panicle or thyrse; calyx small; corolla lilac or white, style 1, stigma 2-cleft; fruit a capsule. Cultivated. - *Syringa, Lilac*
S. vulgaris, with cordate-ovate leaves and flowers in a dense thyrse.
S. Persica, with lanceolate leaves, often pinnately cleft, and small panicked flowers.
4. Corolla funneiform, tube shorter than the lobes;—shrubs with flowers in terminal panicles; calyx short or truncate; corolla white or greenish; stamens 2, partly included; styles thick; fruit a berry-like drupe. Cultivated. - *Ligustrum, Privet*
L. Amurense, with small leaves, and *L. Nepalense,* with large leaves, are evergreens, planted in hedges.
4. Corolla rotate, tube very short, and long linear lobes;—shrubs or small trees with perfect or polygamous flowers in axillary, drooping panicles; calyx short and as the corolla 4-lobed; stamens 2; stigmas notched or 2-lobed; fruit a drupe. - *Chionanthus, Fringe-tree*
C. Virginica. Petals white, drupe deep purple or black. Cultivated.
5. Leaves simple; corolla wanting; fruit a fleshy drupe;—shrubs or trees with deciduous leaves, and mainly polygamous or dioecious flowers in lateral clusters or racemes, appearing before the leaves; calyx small, 4-6 unequally lobed; stamens 2-4; stigma thick, sometimes 2-lobed, - *Adelia (Forestiera)*
A. (F.) ligustrina. Shrub, widely branched, with deciduous, elliptic to obovate leaves; sterile flowers in numerous dense sessile clusters, the fertile in clusters on very short pedicels. Riverbanks. Summer.
5. Leaves odd-pinnate; corolla wanting or of 2-4 petals, distinct or united; fruit a samara;—shrubs or trees; flowers polygamous or dioecious, rarely perfect, in clusters or panicles; calyx wanting or with 4 unequal lobes; stamens 2, rarely 3-4; style 1, stigma 2-cleft. Riverswamps. Spring. - *Fraxinus, Ash*
F. Caroliniana (platycarpa), Water-ash, Pop-ash. Shrub or small tree; leaflets 5-9; samaras elliptic to obovate, with the linear body flat and the 2-3 wings pinnately veined.
F. Americana, White-ash, Cane-ash. Tree; leaflets 5-9, green above, pale glaucous beneath; samaras with a stout oblong-cylindric body and a terminal, linear-oblong or oblong-spatulate wing.

130. *Spigelliaceae (Loganiaceae), Logania Family.*

Herbs, shrubs or vines with stipulate, simple, opposite or whorled leaves, and perfect, regular flowers in cymes or panicles; calyx and corolla 4-5 lobed; stamens 4-5, alternate with the corolla-lobes; ovary superior, 2-rarely 3-5 celled; ovules 1-2 or numerous in each cell; styles united or partially so; fruit capsular or baccate or drupaceous.

1. Shrubby vines;—leaves opposite, with minute caducous stipules; flowers solitary or few together, cymose; calyx and funnelliform corolla 5-lobed; stamens 5, dimorphous; ovary 2-celled; ovules numerous in each cell; stigmas 4; fruit a capsule.

Gelsemium, Yellow Jessamine

- G. sempervirens. A smooth evergreen vine with fragrant flowers. Thickets near water, and planted. Early Spring.

1. Herbs, - - - - - 2

2. Calyx shorter than the urn-shaped corolla; lobes of corolla valvate, throat bearded;—leaves opposite and stipules small; flowers in cymes, white or purplish; calyx and corolla 5-lobed; stamens 5; ovary 2-celled with 2 styles united when young; capsule tipped with 2 curved horns. Low grounds. Summer,

Cynoctonum (Mitreola), Mitrewort

- C. Mitreola (M. petiolata). Deep green, with more or less petioled membranous leaves.

C. sessifolium. Pale green, with sessile leathery leaves, ovate to orbicular.

C. angustifolium. Pale green, with sessile leathery leaves, linear to lanceolate.

2. Calyx not shorter than the campanulate corolla; lobes of corolla imbricate, throat bearded;—branches 4-angled; leaves opposite and clustered below, narrow; calyx and corolla 4-5 lobed; stamens 4-5; ovary 2-celled with a very short style; capsule slightly 2-lobed. Dry soil. Summer.

Polypremum

- P. procumbens. Stems clustered, erect or prostrate; flowers very small, white.

131. *Gentianaceae, Gentian Family.*

Mostly herbs with simple, exstipulate leaves, partly sheathing, opposite, rarely alternate; flowers regular, cymose; calyx 4-12 parted; corolla 4-12 lobed; stamens alternate with the corolla-lobes and inserted on its tube; ovary superior, 1-celled, with numerous ovules; style mostly 1, stigmas 1-2; capsule 1-or falsely 2-4 celled.

1. Corolla-lobes imbricated; leaves reduced to scales;—slender herbs with the scales opposite or alternate, and the flowers in terminal racemes or panicles, or solitary; calyx-lobes 4-keeled; corolla deeply 4-parted, white or yellowish; stamens 4, included; stigma 2-lobed. Wet pine-land.

Bartonia

- B. verna. Corolla-lobes spatulate to obovate, white. Early Spring.

- B. Virginica. Corolla-lobes oblong, crose near the apex, abruptly pointed, yellowish. Summer.

B. lanceolata. Corolla-lobes lanceolate, acute or acuminate, whitish. Summer and Fall.

1. Corolla-lobes convolute; leaves present. - - - 2

2. Style none, stigma sessile; corolla tubular, with plaits in the sinuses;—herbs with opposite leaves and commonly sessile and clustered, rarely pedicelled and solitary, 5-parted flowers; stamens with converging or cohering anthers. Summer and Fall.

Dasystephana (*Gentiana*), *Gentian*

D. parvifolia (G. Elliptii). Corolla funnelliform, rose-purple, lobes ovate, much longer than the unequally cleft and fimbriate plaits. Riverbanks.

D. latifolia (G. Elliptii var. *latifolia*). Corolla similar to preceding, but plaits equally cleft and almost entire. Riverbanks.

D. Porphyrio (G. *angustifolia*). Flowers solitary, pedicelled; corolla funnel-form, deep blue or nearly white; lobes longer than the fimbriate plaits. Moist pine-land.

2. Style present, filiform; stigmas linear, about as long as the style. - 3

3. Flowers sessile, and when more than one, capitate; anthers curved;—herbs with narrow, sessile, opposite leaves; flowers 7-10 parted; corolla rotate; ovary 1-celled with intruding placentae; stigmas 2. - - - *Lapitheae* (*Sabbatia*)

L. (S.) gentianoides. Leaves spatulate at the base of the stem, linear along the stem; corolla reddish, lilac or pinkish. Near pine-barren ponds. Summer.

3. Flowers pedicelled, and when more than one, paniculate; anthers coiled;—herbs with opposite or whorled leaves; flowers 4-12 parted; corolla rotate; ovary 1-celled with intruding placentae; stigmas 2. Wet pine-land. Spring and Summer.

Sabbatia, *American Centaury*

- a. Corolla-lobes 4-7, - - - b

- a. Corolla-lobes 8-12;—leaves linear to lanceolate; corolla rose-purple to white, with yellow eye, - - - *S. dodecandra* (*chloroides*)

- b. Branches of the stem opposite, - - - c

- b. Branches of the stem alternate, - - - d

- c. Stem round; calyx-lobes shorter than the tube; corolla white, - - - *S. macrophylla*

- c. Stem 4-angled or winged; calyx-lobes linear, longer than the tube; corolla white.

- Calyx-lobes longer than the tube, - - - *S. lanceolata*

- Calyx-lobes about twice as long as the tube, - - - *S. paniculata*

- d. Calyx-lobes foliaceous; linear to oblanceolate, usually longer than the corolla;—corolla rose or nearly white, *S. calycina* (*calycosa*)

- d. Calyx-lobes very narrow to filiform, usually shorter than the corolla, e

- e. Stigmas longer than the style, - - - f

- e. Stigmas shorter than the style, - - - f

- f. Calyx-lobes less than one-half of the corolla-lobes; corolla white or cream-color, - - - *S. Elliptii*

- f. Calyx-lobes nearly as long as the corolla-lobes; corolla pink or white, - - - *S. stellaris*

- g. Corolla lobes 1-2 cm. long, rose or magenta with yellow eye, - - - *S. campanulata* (*gracilis*)

- g. Corolla-lobes 2-3 cm. long, pink or white, - - - *S. grandiflora* (*gracilis* var. *grandiflora*)

132. Apocynaceae, Dogbane Family.

Herbs or shrubs, sometimes vines or trees, with opposite or alternate exstipulate leaves, and regular 5-parted flowers in cymes or panicles; stamens distinct, inserted on the corolla-tube and alternate with its lobes; carpels 2, distinct or united, superior; styles united, fruit consisting of 2 follicles or drupes; seed often with an appendage; mostly evergreens.

1. Anthers unappendaged, - - - - - 2
1. Anthers appendaged at the base, - - - - - 4
2. Shrubs or trees with alternate leaves; flowers solitary or few together; corolla funnelliform with inequilateral lobes; fruit a drupe from 2 carpels. Summer. Cultivated. - - - - - *Thevetia*
T. nerifolia, *Yellow Oleander*. Branching shrub with many narrow, sessile leaves and saffron-yellow flowers.
2. Shrubby climbers with abundant latex; leaves opposite, short-stalked; peduncles long; calyx-lobes reflexed; corolla white, the tube contracted below the middle; fragrant. Early Summer. Cultivated. - *Trachelospermum* (*Rhynchospermum*) *jasminoides*,
Confederate Jessamine or *Star-jessamine*
2. Herbs, with opposite leaves, - - - - - 8
3. Corolla funnelliform, anthers with a foliaceous connective, stigma smooth, carpels 6-8 ovuled;—stems trailing; flowers mostly solitary in the axils, violet, purple or white. Summer. Cultivated. - - - - -
Vine, *Pertwinkle*
V. minor. Procumbent; leaves elliptic-lanceolate, not ciliate.
V. major. Decumbent; leaves ovate, ciliate at the edges.
3. Corolla salverform, anthers with an inconspicuous connective, stigma pubescent, carpels many-ovuled;—partly shrubby, erect stems; flowers often 2 together. Summer. Cultivated. *Ammecallis*, *Pertwinkle*
A. (Vine) *rosea*. Leaves rather fleshy; corolla white or pink.
4. Shrubs or trees with leaves opposite or in 3's; corolla salverform; flowers in terminal compound cymes. Cultivated. - *Nerium*, *Oleander*
N. Oleander. Shrub with numerous narrow leaves, and roseate, pink or white flowers, of which several single and double varieties are planted.
4. Shrubs with leaves opposite or in 4's; corolla funnel-bellform, flowers solitary or few together. Cultivated. - - - - - *Allamanda*
Bushy or climbing shrubs with yellow flowers (*A. nerifolia*, *Hendersonii*, *Williamsii*), rarely with purple flowers (*Blanchettii*).

133. Asclepiadaceae, Milkweed Family.

Herbs, vines or shrubs, mostly with milky sap; leaves opposite, alternate or whorled, without stipules; flowers perfect, mostly umbellate, 5-parted; calyx inferior, its tube short or absent; corolla-lobes usually reflexed; between the corolla and the stamens is the CROWN, adnate to the one or the other, or to both; fila-

ments usually monadelphous or distinct, the anthers converging around the stigma; anther-cells with a scarious membrane or unappendaged; pollen coherent into waxy or granular, pear-shaped masses, POLLINIA, connected with the processes of the stigma; ovaries 2; styles 2, with a common fleshy stigma; fruit of 2 several-seeded follicles; seeds compressed, usually with a long coma.

1. Crown annular, saucer- or cup-shaped; mostly twiners.

Vincetoxicum (Gonolobus)

V. (G.) *suberosum*. Stem slender, twining, with ovate-oblong, thickish leaves, and the flowers in racemes; corolla brown-purple; crown an annular disk undulately 5- or 10-crenate, adnate to the corolla; stigma depressed; pollinia pyriform, rounded at the base, with broad winged caudicles; follicles 3-5 angled. Riverbanks. Spring and Summer.

V. (G.) *Floridaanum*. Stem slender, hirsute, with ovate, tapering leaves; racemes about as long as the petioles; corolla dull-greenish or purplish; crown red-purple, saucer-shaped, with 5 broad undulations, each bidentate at the apex, and a smaller tooth on each side in the middle; pollinia oblong with broad caudicles. Sandy soil. Summer.

1. Crown of 5 depressed spreading segments; evergreen woody vine, - *Hoya*
H. *carnea*, *Wax-plant*. Leaves oval-oblong, fleshy; flowers in dense umbels, pink, wax-like. Cultivated.

1. Parts of crown hooded, - - - - - 2
2. Hoods without horn-like processes, - - - - - *Aceratas*

A. *Floridaana (longifolia)*. Stem with linear leaves and 2-3 or more many-flowered umbels; corolla dull-purple outside; crown purplish, adnate to the upper part of the column, rising to about the middle of the anthers; anther-wings angled at the middle; follicles fusiform. Wet pine-land. Spring and Summer.

2. Hoods with horn-like processes, - *Asclepias, Milk-weed*

a. Flowers orange to yellow, - - - - - b
a. Flowers whitish, greenish or purplish, - - - - - c

b. Stem hirsute, erect or ascending, branched; leaves alternate; umbels numerous and many-flowered;—leaves lanceolate-oblong to linear; corolla-lobes narrowly oblong, greenish or reddish orange; crown with linear hoods, orange, rarely yellow. Dry fields. Summer and Fall.

A. *taberrosa, Butterfly-weed, Pleurisy-root*

b. Stem smooth, tall, mostly simple; leaves distant; umbels few and few-flowered;—leaves lanceolate to oblong-linear; corolla-lobes oblong, reddish purple; crown with oblong hoods, orange. Swampy ground. Summer. - A. *lanceolata (paupercula)*

c. Leaves oblong or elliptic, sessile, clasping;—stem smooth; leaves opposite; umbels loosely many-flowered; corolla-lobes greenish or greenish purple; crown with slightly gibbous hoods, flesh-colored or reddish. Sandy soil. Spring and Summer.

A. *amplexicaulis (obtusifolia)*

c. Leaves ovate to lanceolate, narrowed into a petiole, - - - - - d
c. Leaves linear to filiform, - - - - - e
d. Stem hirsute-pubescent, branched, and very leafy at the top;

umbels numerous and many-flowered, corymbose; corolla small, rose-purple to white, crown flesh-colored. Moist fields. Summer and Fall.

A. pulchra

- d. Stem woody at the base, smooth, chiefly simple, slender; umbels solitary or corymbose; corolla small, white tipped with pink outside, crown white. Muddy ground. Spring and Summer.

A. perennis

- d. Stem smooth, purplish; leaves in 3-7 pairs; the middle pairs sometimes in whorls of 4; flowers in crowded globose umbels; corolla whitish, crown purple. Dry shaded ground. Spring and Summer.

A. variegata

- d. Stem stout, tomentose, cinereous; leaves opposite, with broad midvein; umbels 2-6 in the upper axils; corolla yellowish green, crown purplish. Dry ground, Summer.

A. obovata

- e. Leaves opposite;—stem glabrous, erect, slender; umbels 2-6, few-flowered; corolla purplish outside, ash-colored within; hoods of the crown whitish and purple-keeled. Dry pine-land. Summer.

A. cinerea

- e. Leaves in whorls of 3-6, or scattered;—stem glabrous or pubescent in lines, mostly simple; umbels loosely flowered; corolla greenish white; crown white to yellowish. In sterile soil. Spring to Fall.

A. verticillata

134. Convolvulaceae, *Morning-glory Family.*

Mostly prostrate or twining herbs with alternate, exstipulate leaves, and perfect regular flowers, solitary or in cymes; sepals 5, more or less united; corolla 5-lobed, angled or-plaited; stamens 5, partially adnate to the corolla-lobes and alternate with them; ovary free, 2-5 celled, seated in a fleshy disk; styles 1 or 2; stigma sometimes 2-lobed; fruit a capsule, 2-4 celled, or 1-or 5-celled.

1. Styles 2-3, distinct or nearly so, - - - - - 2
1. Styles united into one, - - - - - 3
2. Styles 2, distinct, each 2-cleft;—herbs with small flowers, solitary in the axils, or in terminal racemes or panicles; corolla white, pink or blue, funnellform, campanulate or rotate; stamens 5, included; ovary 2-celled. - - - - - *Evolvulus*
- E. sericeus*. Linear, sessile leaves on slender zigzag branches; corolla rotate. Damp soil. Summer and Fall.
2. Styles 2, distinct or united below, entire;—prostrate or twining herbs with 1-5 flowers on axillary peduncles; corolla white, pink, purple or yellow, campanulate; stamens 5, included; ovary 2-celled. - - - - - *Breweria (Stylisma)*
- B. (S.) humistrata*. Sepals glabrous or nearly so; corolla white or pinkish. In sandy soil. Summer and Fall.
- B. (S.) aquatica*. Sepals silky-tomentose; corolla rose-purple. Around pine-land ponds. Summer and Fall.
2. Corolla salverform; stamens and style exserted;—twining vines with flowers in axillary cymes, or solitary; corolla-limb shorter than

- the narrowly funnelform tube, 5-lobed; ovary 2-celled or falsely 4-celled. Summer and Fall. Quameclit
- Q. (*Ipomoea*) Quameclit, *Cypress-vine*. Leaves pinnately parted, segments linear; corolla scarlet. Cultivated and escaped.
- Q. (*Ipomoea*) coccinea, *Red Morning-glory*. Leaves entire; corolla scarlet or orange-tinged. Cultivated and escaped.
3. Corolla funnelform or bell-shaped; stamens and style included. 4
4. Ovary 1-2 celled; leaves hastate or cordate;—trailing or twining vines, or erect herbs or shrubs, with flowers solitary or clustered in the axils; calyx naked or bracted; corolla white, pink or purple. Convolvulus, *Bindweed*
- C. spithameus (*Calystegia spithamea*). Stem not twining; leaves oblong-ovate or fiddle-shaped; calyx bracted; sepals acute or acuminate, not longer than the bracts; corolla-limb undulate. Dry soil. Summer.
4. Ovary 3 or 5 celled; leaves entire, angled or lobed;—climbing or trailing herbs, with flowers solitary or in cymes; corolla white, blue, purple, etc. Cultivated. Pharbitis, *Morning-glory*
4. Ovary 2 or 4 celled; leaves entire, angled or lobed;—mainly climbing or trailing herbs, with flowers solitary or in cymes; corolla-limb usually spreading. Summer and Fall. Ipomoea, *Morning-glory*
- a. Stems creeping, on the beach. b
- a. Stems twining or trailing, on sandy soil. c
- b. Leaves ovate to oblong, later fiddle-shaped or lobed; corolla white with a yellow throat; seeds woolly. I. (*Batatas*) littoralis
- b. Leaves suborbicular; peduncle 1-several flowered; corolla purple, limb undulate; seeds pubescent. I. Pes-Caprae
- c. Leaves palmately 7-parted;—stem twining, branching, hairy; corolla white with a purple throat; seeds smooth. Near the coast. I. dissecta (sinuata)
- c. Leaves entire or 3-lobed, d
- d. Leaves ovate to fiddle-shaped, cordate; peduncles 1-5 flowered; corolla white or pinkish, lavender inside; seeds woolly on the angles. Dry or damp soil. I. pandurata
- d. Leaves hastate to sagittate, segments linear; peduncles usually 1-flowered; corolla purple, seeds villous. Sandy soil. I. speciosa (sagittata)
- d. Leaves ovate, entire or deeply 3-lobed, cordate; peduncles 1-3 flowered; corolla pink or purple, tube often whitish; seeds smooth. Sandy soil. I. Caroliniana (commutata)
- The I. (*Batatas*) edulis, *Sweet Potato*, with 3-5 lobed or angled leaves, and peduncles with 3-5 purple flowers, is cultivated for its tubers.

135. Cuscutaceae, Dodder Family.

Herbaceous twining parasites with long filiform stems, and minute alternate scales instead of leaves; flowers small, white, in cymes; sepals 4-5, distinct or united; petals 4-5, partly united, with or without scales; stamens 4-5, adnate to the corolla; ovary superior, 2-celled; ovules 2 in each cell; styles 2, mostly distinct; fruit a capsule. "The plant germinates in the ground and soon

decays at the root, after attaching itself to the host-plant by suckers."

Cuscuta arvensis. Filiform, pale yellow at first, deeper yellow later; flowers 5-parted in rather loose clusters, corolla-lobes acute; scales as long as the corolla-tube, fringed all around with short processes. Summer.

C. Gronovii. Slender, yellowish, becoming orange; flowers 5-parted in dense clusters, corolla-lobes obtuse; scales as long as the corolla-tube, sparingly fringed with stoutish processes. Summer and Fall.

136. Polemoniaceae, *Phlox* Family.

Herbaceous or shrubby plants with alternate or opposite leaves and paniculate or corymbose flowers; sepals 5, partially united; corolla 5-lobed, regular; stamens 5, often unequal, adnate to the corolla-tube; ovary 3-celled with united styles and 3 stigmas; fruit a 3-celled capsule with one or more seeds in each cell.

1. Leaves often alternate, pinnately parted into linear lobes; corolla funnelliform, Gillia
 - G. rubra* (*coreanopifolia*). Stem tall, leafy; flowers scarlet or yellow, and red inside, in a raceme or narrow panicle; calyx campanulate. Sand-dunes near Ormond. Summer.
1. Leaves chiefly opposite, entire; corolla salverform, Phlox
 - a. Lobes of the corolla rounded at the end and entire, b
 - a. Lobes of the corolla notched or erose;—stem branched at the base and very leafy; leaves opposite, linear, sessile, with smaller ones in the axils; calyx-lobes not shorter than its tube; corolla purple, lavender or white, Sand. Spring. P. Hentsii
 - b. Flowers in cylindric or pyramidal panicles; calyx-lobes shorter than its tube. c
 - b. Flowers in corymbs; calyx-lobes not shorter than its tube. d
 - c. Panicles cylindrical; calyx-lobes lanceolate to triangular;—stems erect, clustered, nearly smooth; leaves opposite, lanceolate, sessile; corolla pink-purple. Low ground. Summer. P. maculata, Sweet William
 - c. Panicles pyramidal; calyx-lobes subulate;—stems branched, somewhat pubescent; leaves opposite, narrow-elliptic, nearly sessile; corolla pink-purple or white. Woody land. Summer. P. paniculata, Sweet William
 - d. Plant villous-hirsute; calyx-lobes hairy, prolonged into long and spreading bristle-like points;—leaves opposite, linear to narrowly lanceolate; corolla pink-purple to white. Dry woody ground. Spring. F. pilosa
 - d. Plant finely-pubescent; calyx-lobes glandular-pubescent, somewhat bristle-pointed;—leaves opposite, linear to linear-lanceolate; corolla light-purple. Dry woody ground. Spring. F. Floridaana
 - d. Plant pubescent to villous; calyx-lobes bristle-pointed; revolute;—leaves mostly alternate, lanceolate to oblong; corolla of all shades, white to purple, without or with a star. Cultivated and escaped. F. Drummondii

137. Solanaceae, *Potato or Nightshade Family.*

Herbs, shrubs or vines with alternate, mostly exstipulate leaves and usually 5-parted, rarely 4 or 6 parted flowers; calyx gamosepalous; stamens alternate with the lobes of the corolla and adnate to its tube; ovary superior, 2-celled, sometimes 3-5 celled; styles united; fruit a berry or a capsule; seeds numerous.

1. Corolla campanulate;—herbs with simple leaves and axillary flowers, solitary or in clusters of 2-4; calyx 5-angled or 10-ribbed; corolla yellowish or whitish, often with brownish or purplish center, with short and broad lobes. Sandy soil. Summer.

Physalis, Ground Cherry

P. pubescens. More or less villous and viscid; calyx-lobes narrow, twice its tube; corolla yellow with dark center; anthers purplish; berry yellow or greenish.

P. arnicola. Sparingly hairy; calyx-lobes triangular-lanceolate, equal to its tube; corolla light-yellow; anthers yellow; berry light-yellow.

P. viscosa. Creeping, stellate-pubescent; calyx-lobes triangular; corolla greenish-yellow with darker center; anthers yellow; berry orange or yellow, viscid.

1. Corolla rotate, tube very short, - - - - - 2
1. Corolla funnel-or salverform, - - - - - 3

2. Anthers converging or connate, their cells opening lengthwise and introrsely;—herbs with 1-2 pinnately divided leaves, and 5-6 parted flowers in lateral raceme-like cymes; calyx spreading; corolla yellowish, limb plaited; berry very pulpy, *Lycopersicon, Tomato*

L. esculentum. Coarse, strong-scented herb, often more than 6-parted. Cultivated.

2. Anthers connivent, their cells opening by slits;—herbs with the leaves flat, entire or repand, and 5-parted flowers, solitary in the axils or in small cymes; corolla usually white; anthers bluish; berry red, yellow or green, nodding. - - - - - *Capsicum*

C. baccatum. Shrubby, somewhat pubescent, widely branching; leaves ovate to ovate-lanceolate, truncate at the base; berry globose to elliptic, red. Hammocks.

The *Red (Cayenne) Pepper* is obtained from several varieties of *Capsicum annum*; *Green Pepper* is the unripe state of the fruit.

2. Anthers converging or connate, their cells opening by terminal pores or slits;—herbs, vines or shrubs with entire or lobed leaves and 5-parted flowers; corolla-limb plaited. In sandy soil. The wild species bloom throughout the year. - *Solanum, Nightshade*

a. Wild species:

S. nigrum, Black Nightshade. Herbs without prickles; flowers whitish, berries black.

S. carolinensis, Horse-nettle. Perennial, prickly; flowers violet or white; berries yellow to orange-yellow.

S. floridanum, Horse-nettle. Perennial, prickly; flowers violet; berries orange-red.

a. Cultivated species:

S. jasminoides, Potato-jessamine. with white and yellow or bluish

- flowers and red berries, — and *S. aszureum*, *Tomatillo*, with blue flowers in large bunches and large scarlet berries, are ornamental vines.
8. *tuberosum*, *Potato*. Herbs without prickles, leaves odd-pinnate and interrupted. Cultivated for its tubers.
8. *Melongena*, *Egg-plant*. Perennial, prickly; flowers 6-9 parted, corolla purplish, fruit large, glossy-purple or white. Cultivated.
3. Corolla-limb plaited, somewhat irregular; — herbs with entire leaves and large flowers solitary in the axils; stamens 4, didynamous, and a fifth smaller or obsolete. Cultivated in many varieties; the two principal species are: — — — — — *Petunia*
P. nyctaginiflora. Erect, branched; corolla white, its tube thrice longer than the calyx.
P. violacea. Ascending; corolla violet-purple, its tube twice longer than the calyx.
3. Corolla limb regular, — — — — — 4
4. Stamens exserted; — shrubs or woody vines, prickly, with axillary 5- or 4-parted flowers, — — — — — *Lycium*, *Matrimony-vine*
L. Carolinianum. Stems erect, widely branched, with fleshy clustered leaves; flowers small, purple; berries red.
4. Stamens included, — — — — — 5
5. Shrubby; calyx campanulate or tubular, short; fruit a berry; — leaves entire; flowers axillary, clustered, 5-parted. Cultivated. — — — — — *Cestrum*
C. diurnum, *Day Jessamine*, with white, scented flowers.
C. nocturnum, *Night-blooming Jessamine*, with creamy-yellow, strongly scented flowers.
C. elegans, with rose-pink and carmine flowers, fragrant.
5. Herbaceous; calyx prismatic, long; fruit a prickly capsule; — leaves toothed or angled; flowers axillary, solitary, 5-parted, corolla tube much longer than the calyx. Waste places. Summer. — — — — —
Datura, *Jimson Weed*, *Thorn-apple*
D. Stramonium. — Stem stout, green; foliage nearly smooth; corolla white.
D. Tatula. Stem stout, purple; foliage nearly smooth; corolla violet or lavender.
Several species with simple or double flowers are cultivated in various colors.
5. Herbaceous; calyx urn-shaped; fruit a capsule usually splitting into 4 valves; — tall plants; leaves simple, entire or undulate; flowers in terminal racemes, panicles or thyrses, 5-parted. Cultivated, — — — — — *Nicotiana*
N. glauca (affinis). Leaves lance-obovate or ovate-elliptic, sessile or clasping, the upper ones small and narrow; flowers white, sometimes purplish outside, remote in a virgate raceme, open at night-fall and fragrant.
N. tabacum, *Tobacco*. Leaves mostly ovate or ovate-lanceolate, acuminate, sessile or decurrent; flowers red or purplish in a large panicle, diurnal.

138. Boraginaceae, Borage Family.

Herbs or shrubby plants with bristly pubescent foliage; leaves simple, alternate, exstipulate; flowers 5-parted, in cymes or scorpioid racemes or spikes; sepals more or less united; stamens adnate to the corolla-tube, often with appendages; ovary superior, styles united,

stigma simple or 2-lobed, and ovules solitary in each cavity.

Leaves sessile, prominently veined; corolla greenish-white or yellowish, tubular, longer than the calyx, naked in the throat but with the sinuses often inflexed; stamens included; ovary 4-parted; style exserted; fruit consisting of 4 or 1-2 white, shiny nutlets.

Onosmedium, False Crowweel

C. Virginianum. Leaves linear to lanceolate, 5-veined, numerous; scorpioid racemes terminal, bracted; calyx bristly; corolla yellowish-green, somewhat funnelform; nutlets pitted. Sand. Late Spring.

139. Heliotropiaceae, *Heliotrope Family.*

Mainly as preceding family, but style or stigma furnished with a glandular ring, surmounted by a 2-lobed appendage.

Heliotropium Curassavicum, Heliotrope. Prostrate fleshy herb; leaves alternate or nearly opposite, glaucous, lanceolate or linear; flowers small, white with yellow or bluish center; anthers acuminate; fruit consisting of four 1-seeded nutlets. Saline marshes. Summer. (Also found on the shore of Lake Monroe, near Enterprise).

Cultivated *Heliotropes* are *H. Peruvianum* or *H. corymbosum*, or hybrids of both.

140. Verbenaceae, *Vervain Family.*

Herbs or shrubs with 4-angled stems and exstipulate, simple leaves, alternate, opposite or clustered; calyx often bracted, 4-5 cleft; corolla 4-5 lobed, sometimes bilabiate; stamens 2 or 4, didynamous, adnate to the corolla-tube; ovary superior, 2-4 celled, and 1 or 2 ovules in each cell; style 1 with an entire or 2- or 4-lobed stigma; fruit drupe- or berry-like, or dry and then separating into 2 or 4 nutlets.

1. Herbs, - - - - - 2
1. Shrubs, - - - - - 3

2. Stems erect; fruit of 4 nutlets;—leaves opposite; flowers in spikes; corolla-tube straight or curved, the limb regular, or more or less 2-lipped, the throat bearded; stamens 4 or 2, included; ovary 4-celled with solitary ovules; stigma 2-lobed. Dry soil. Spring and Summer. - - - - - *Verbena, Vervain*

V. officinalis. Leaves 1-2 pinnatifid; flowers blue or purple in slender spikes.

V. urticifolia. Leaves lanceolate to ovate, crenate-serrate; flowers white in slender interrupted spikes.

V. Carolinensis. Leaves spatulate to oblong, doubly serrate; flowers pink or bluish in slender spikes, becoming interrupted.

V. angustifolia. Leaves linear to lanceolate, coarsely serrate; flowers blue or purple in linear spikes.

2. Stems procumbent or creeping; fruit of 2 nutlets;—leaves opposite or whorled; flowers in peduncled axillary spikes, subtended by a conspicuous bract; corolla 2-lipped, with 4 segments; stamens

- 4, included; ovary 2-celled with solitary ovules; stigma oblique. - *Phyla*
P. (Lippia) nodiflora. Leaves spatulate, serrate above the middle; flowers
purple to white. Damp sandy soil. Spring to Fall.
3. Leaves 3-7 digitately compound;—flowers in paniculate cymes; calyx
with 5-8 lobes; corolla with spreading irregular limb; stamens
4, exserted; ovary 2 or 4 celled; fruit a drupe. - *Vitex*, *Chaste-tree*
V. Agnus-Castus. Leaves 5-7 foliate; corolla white, blue or purplish. Cultiv-
ated.
3. Leaves simple, - - - - - 4
4. Flowers in dense peduncled spikes; fruit drupe-like of 2 nutlets;—
leaves opposite, toothed; corolla 4-5 lobed, more or less 2-lip-
ped; stamens 4, included; ovary 2-celled, with solitary ovules.
Sandy soil, escaped from cultivation. - - - *Lantana*
L. Camara; opening yellow, but changing to orange or scarlet.
L. Sellowiana, *Polecat-geranium*; magenta or lilac.
4. Flowers in axillary cymes, sessile or peduncled; fruit a drupe, 4-
seeded;—leaves opposite, entire or toothed; corolla with 4 equal
lobes; stamens 4, often exserted; ovary imperfectly 2-celled, with
2 ovules in each cell, - - - *Callicarpa*, *French Mulberry*
C. Americana. Bushy, scurfy-pubescent; leaves serrate; corolla bluish or
pink; fruit violet or purple. Sandy soil. Summer.

Other often cultivated species are:

- Clerodendron Siphonanthus*, *Turk's Turban*. Flowers in long trichoto-
mous cymes, yellowish white; more conspicuous is the fruit, consisting
of purple drupes; leaves in whorls of 3's or 4's, long lanceolate.
- Clerodendron Balfouri*. A climber, with bright scarlet flowers enclosed in
a bag-like calyx of pure white, in panicles.
- Duranta plumieri*, *Golden Dewdrop*. Flowers pale blue or lilac, often
with two purple streaks, in racemes; drupes yellow; leaves opposite,
elliptic, acute, entire or unequally serrate above the middle.

141. Lamiaceae (Labiatae), *Mint Family*.

Herbs and shrubs with 4-angled stems and opposite or
whorled, exstipulate, simple leaves; flowers in axillary
cymes; calyx regular or irregular, gamosepalous; cor-
olla bilabiate or nearly regular, gamopetalous; stamens
4 and didynamous, or one pair abortive, adnate to the
corolla-tube; ovary superior, deeply 4-lobed; style single,
arising from between the lobes of the ovary; ovules soli-
tary in each cell; fruit usually consisting of 4 nutlets
included in the calyx.

- | | | | | | |
|---|---|---|---|---|----|
| 1. Calyx 5- or 10-lobed, not 2-lipped, | - | - | - | - | 2 |
| 1. Calyx 2-lipped,* | - | - | - | - | 11 |
| 2. Corolla 2-lipped or very irregular, | - | - | - | - | 3 |
| 2. Corolla nearly regular, | - | - | - | - | 10 |
| 3. Corolla 2-lipped, lower lip 2-lobed, | - | - | - | - | 4 |
| 3. Corolla irregular, lowest lobe saccate or boat-shaped, | - | - | - | - | 9 |

* And in *Keckia albenscens*.

4. Middle lobe much longer than the two lateral lobes, * - - 5
4. Middle lobe much broader than the lateral lobes, and often notched, - - 6
4. Middle lobe nearly equal to the two lateral lobes, - - 8
5. Stamens didynamous, exerted between the lobes of the upper lip of the corolla:—flowers in raceme-like panicles; calyx-tube 10-ribbed, 5-lobed; upper lip of corolla short, - - *Tesleria*
- T. *Nashii*. Stem downy, grayish-white; leaves narrow-oblong to lanceolate; calyx prominently ribbed when mature; corolla pink. Near the coast. Spring and Summer.
- T. *littorale*. Stem downy, grayish-white; leaves narrow-oblong to lanceolate; calyx scarcely ribbed; corolla pale pink. Near the coast. Summer.
5. Stamens with anthers 2, the other 3 rudimentary or wanting:—flowers in dense clusters; calyx-tube 15-ribbed, 5-lobed; upper lip of corolla narrow, - - *Monarda*
- M. *stalea*, *Wild Bergamot*, *Horse-mint*. Stem slightly villous, purple-spotted; leaves ovate to lanceolate, serrate; calyx-tube slightly curved, villous in the throat; corolla lilac; involucre purplish. High sandy ground. Summer and Fall.
- M. *punctata*. Stem pubescent; leaves linear-oblong to lanceolate, serrate; calyx not bearded in the throat; corolla yellowish, the lower lip dotted with brown; involucre somewhat colored. Sandy soil. Summer and Fall.
6. Calyx-lobes 5, - - - 7
6. Calyx-lobes 10;—woolly herbs with flowers in dense, axillary clusters; calyx-tube 5-10 ribbed, lobes equal or alternately long and short; stamens 4, included, - - *Marrubium*
- M. *valgare*. Leaves oval or ovate, crenate; bracts subulate with hooked ends; corolla small, white. Roadside. Spring and Summer.
7. Calyx-lobes not spiny;—flowers in axillary more or less remote clusters; calyx-tube 5-ribbed; lobes equal or the upper longer; upper lip of corolla erect, concave; stamens 4, ascending under the upper lip, - - *Lamium*
- L. *amplexicaule*, *Dead Nettle*. Branching at the base; leaves suborbicular, crenate-lobed; involucre sessile, clasping; calyx villous-hirsute; corolla blue or purple, lower lip cleft, upper lip pilose. Waste places. Spring and Summer.
7. Calyx-lobes rigid or spiny;—flowers in clusters, the upper ones sometimes contiguous; calyx-tube 5-10 ribbed; lobes equal or nearly so; stamens 4, - - *Stackys*
- S. *floridana*, *Hedge-nettle*. More or less hirsute; leaves oblong to ovate, serrate or dentate, with petioles nearly as long as the blades on lower part of stem; corolla twice as long as the calyx, purple. Low sandy soil. Summer.
8. Anthers 2-celled, the cells diverging; prostrate herbs;—flowers few or many, or solitary in the axils; calyx-tube usually 13-ribbed; lobes 5, nearly equal, sometimes almost 2-lipped; corolla small or minute; stamens 4, - - *Micromeria*
- M. *Brownei*. Stems smooth or nearly so; leaves broadly-ovate, undulate or crenulate; pedicel longer than the calyx; corolla purple. Riverbanks. Summer.

* And in *Koelia hyssopifolia*.

8. Anthers 2-celled, the cells parallel; erect herbs;—glabrous or pubescent; flowers in dense axillary or terminal clusters; calyx-tube 10-13 ribbed; lobes 5, equal or unequal; stamens 4, often nearly equal with filaments longer than the corolla. Pine-land. Summer and Fall. - *Koelia* (*Pycnanthemum*), *Horse-mint*
- K. aristata*. Leaves lanceolate, nearly sessile; clusters subglobose; corolla pink or whitish.
- K. hyssopifolia*. Leaves narrowly oblong to linear, nearly sessile; clusters subglobose; calyx-tube prominently ribbed; corolla pink or whitish, with middle lobe of lower lip much longer than the lateral ones.
- K. albescent*. Stems whitish; leaves ovate, serrate; calyx slightly curved, more or less 2-lipped; corolla pink.
8. Anthers 2-celled, the cells separated; shrubby plants;—flowers in dense, bracted, spike-like racemes or panicles; calyx delicate, 10-ribbed, 5-lobed, silky; corolla longer than the calyx, upper lip erect; stamens 4, the outer 2 longer than the inner 2, and exerted, - - - *Pycnothymus*
- P. rigidus* (*Satureia rigida*). Stems with many spreading branches; leaves small, opposite, numerous, rigid, lanceolate, sharply revolute, sessile, with clusters of smaller leaves in the axils; racemes subglobose or cylindrical; corolla light purple, with darker blotches on the middle lobe of the lower lip, minutely pubescent. In sand and pine-land. Early Spring.
9. Lowest lobe of corolla drooping, contracted at its base, the other four lobes flat, erect or spreading;—flowers in axillary, subglobose clusters, approximate or remote; calyx-lobes 5, nearly equal; stamens 4, declined, - - - *Mesophaeum* (*Hyptis*)
- M. spicatum* (*H. spicata*). Pubescent; leaves petioled, deltoid-ovate, crenate-serrate; flower-clusters nearly sessile; corolla much longer than the calyx. Sandy soil. Spring to Fall.
- M. rugosum* (*H. radiata*). Pubescent above; leaves decurrent on the petioles, ovate to linear-lanceolate, somewhat serrate; flower-heads dense, peduncled; calyx and corolla pubescent; corolla small, white dotted with purple. Damp soil. Summer and Fall.
9. Lowest lobe of corolla boat-shaped, longer than the obtusely 3-4 cleft upper part;—leaves large, bluntly serrate, marked with crimson, green and bronze. Cultivated. - - - *Coleus*
10. Anther-bearing stamens 2;—flowers in remote axillary clusters; calyx and corolla nearly regular, 4-5 lobed, the latter white or purplish; filaments 4 or 2. In low pine-land or swamps. Summer and Fall. - - - *Lycopus*, *Water Hoarhound*
- L. pubens*. More or less pubescent, green or purplish; stems obtusely angled, producing tuber-bearing stolons; leaves sessile, oblong to linear-oblong, serrate.
- L. rubellus*. More or less pubescent, green or purplish; stems sharply angled, producing scaly or leafy stolons; leaves petioled, oblong to lanceolate, serrate.
10. Anther-bearing stamens 4;—flowers in dense, remote or contiguous clusters; calyx-tube 10-ribbed, lobes 5, nearly equal; corolla-tube shorter than the calyx; upper corolla-lobe somewhat larger than the rest; stamens 4, erect, filaments equal, - - - *Mentha*
- M. piperita*, *Peppermint*. Stems smooth; leaves oblong, oval to ovate,

sharply serrate, short-petioled; flowers in interrupted spike-like panicles; calyx smooth; corolla white, pale-purple or blue.

11. Lips entire, the upper one crested:—flowers in racemes or panicles; corolla 2-lipped, the upper lip arched, the lower lip with 2 small lateral lobes and a larger, spreading, middle lobe; stamens 4, upper pair with 2-celled, lower pair with 1-celled anthers, all ciliate. - - - *Scutellaria, Skull-cap*
8. *lateriflora*. Branching; leaves petioled, ovate-lanceolate, coarsely serrate; flowers small, blue, in axillary racemes, usually 1-sided. Riverswamps. Summer.
8. *integrifolia*. Simple, or branching above; leaves petioled, the lower ovate, coarsely toothed, the upper oblong to linear, entire; racemes or panicles few- or many-flowered; corolla blue or pale, pubescent. Dry soil. Summer.
8. *Floridana*. Nearly simple; leaves sessile, narrowly linear; racemes few-flowered; calyx densely punctate; corolla blue; anthers long-bearded. Swampy pine-land. Summer.

11. Lips lobed, both or only one, - - - - 12

12. Stamens 4, forked at the apex, one prong bearing an anther;—flowers in axillary clusters, collected in terminal panicles; calyx-tube 10-ribbed, upper lip with 3 short lobes, lower lip with 2 narrow lobes; corolla 2-lipped, upper lip arched, lower lip with 2 lateral and a larger middle lobe, - - - *Fraxella, Brunella*

P. (B.) *vulgaris, Self-heal*. Leaves oblong to lanceolate; panicles dense, bracts ciliate; corolla purple or white, upper lip notched, lower fringed. Low ground. Spring to Fall.

12. Stamen 4, only 2 anther-bearing, or stamens 2:—plants with leafy or scape-like stems; leaves opposite or mainly basal; flowers in axillary clusters, disposed in spikes, racemes or panicles; calyx-tube ribbed; upper lip with 3, lower lip with 2 lobes; corolla 2-lipped, lower lip 3-lobed, longer than upper lip; anther-bearing stamens with a conspicuous connective at the apex. Sandy soil. Summer. - - - *Salvia, Sage*

8. *azarea*. Stems more or less branched; leaves oblong to linear, narrowed into short petioles; flower-clusters subtended by narrow bracts and disposed in panicles; calyx slightly pubescent; corolla blue or white, upper lip bearded on the back, middle lobe of lower lip much broader than long and deeply notched.

8. *lyrata*. Pilose or hirsute; stems almost scape-like; leaves chiefly basal, spatulate, lyrate-pinnatifid; panicles much interrupted, the clusters few-flowered; pedicels long; calyx hirsute; corolla blue-purple, with the middle lobe of lower lip broader than long, notched.

Many species are cultivated for their showy blue, white, red or yellow flowers; most common is 8. *splendens* with calyx and corolla scarlet.

12. Stamens 4, all anther-bearing, - - - - 13

13. Anthers awnless;—herbs or shrubs with flowers in axillary clusters, sessile or peduncled; calyx-tube usually 13-ribbed; corolla 2-lipped, upper erect, entire or notched, lower 2-lobed, spreading. In sand. Summer. - - - *Clinopodium (Calamintha), Basil*

C. *coccineum*. Branching shrub, rusty-pubescent or smooth; leaves nearly sessile, leathery, linear-spatulate or linear-oblong; upper lip of calyx

mucronate, the lobes of lower lip acuminate; corolla scarlet, upper lip deeply notched.

C. *macrecalyx*. Similar to preceding; leaves broadly spatulate, contracted into a narrow base, punctate; flowers larger.

12. Anthers awned;—herbs with flowers in axillary clusters; calyx-tube about 12-ribbed; corolla 2-lipped, the upper erect, nearly entire, the lower 3-lobed. In sandy pine-land. Late Summer and Fall.

Dicerandra

D. *densiflora*. Stems loosely branching; leaves oblong-lanceolate, sessile or nearly so; cymes 5-10 flowered, nearly sessile; calyx purplish, the upper lip curved upward and slightly notched, the lower with two acute lobes; corolla pink-purple, spotted, the upper lip retuse, the lower 3-lobed with the middle lobe eroded at the apex.

D. *linearifolia*. Stems branching; leaves linear or lanceolate, sessile or nearly so; cymes peduncled, 3-9 flowered; flowers mainly as in preceding species, but calyx a little shorter.

142. Rhinanthaceae (Scrophulariaceae), Figwort Family.

Chiefly herbs with round stems and exstipulate, simple leaves; flowers perfect; 4-5 sepals, more or less united; corolla bilabiate or only slightly irregular, 4-5 lobed; stamens 4, didynamous, or 2 and 1-2 staminodia, all inserted on the corolla-tube; ovary superior, 2-celled, many-ovuled; style simple or 2-cleft; fruit a 2-celled capsule.

1. Leaves alternate, or leaves opposite and corolla spurred, - - - 2
1. Leaves opposite or whorled, and corolla not spurred, - - - 3
2. Stamens 5, exserted; corolla rotate, more or less irregular;—flowers in terminal spikes, racemes or panicles; sepals and petals 5; corolla white and purplish, or yellow. Waste places. Summer and Fall. - - - *Verbascum, Mullet*
- V. *Blattaria*. Stems slender, smooth, or glandular above; foliage smooth; raceme interrupted.
- V. *Thapsus*. Stems stout, woolly; foliage densely pubescent; raceme spike like, continuous.
2. Stamens 4, included; corolla bilabiate, personate, spurred;—flowers in terminal spikes, racemes or panicles; calyx deeply 5-parted. In sand. Spring and Summer. - - - *Linaria, Toad-flax*
- L. *Canadensis*. Smooth, erect, slender, sometimes branched at the base; leaves linear; racemes usually several-flowered; corolla small, light blue or white.
3. Stamens 2, exserted; corolla rotate;—flowers solitary in the axils, or in racemes or panicles; calyx 4-5 parted; corolla 4-5 lobed. In cultivated ground. Spring and Summer. - - - *Veronica, Speedwell*
- V. *arvensis*. Finely pubescent; leaves ovate; corolla pale blue.
- V. *peregrina*. Smooth or glandular; leaves fleshy, oblanceolate, corolla white.
3. Stamens 2, included, with or without staminodia; corolla bilabiate, - - - 4
3. Stamens 4, mostly didynamous, with or without a staminodium, - - - 5
4. Connective of the anthers dilated, cells transverse;—flowers solitary on axillary peduncles; calyx 5-parted, with 2 bractlets; rather

- succulent herbs, smooth or softly pubescent, - *Gratiola*, *Hedge-hyssop*
6. *Virginalana*. Pubescent above; peduncles about as long as the bracts; corolla with yellowish tube and whitish lobes. Muddy banks, Spring to Fall.
6. *sphaerocarpa*. Glabrous; peduncles rarely one-half of the bracts; corolla white. Low ground. Summer and Fall.
4. Connective of the anthers not dilated, cells vertical;—flowers solitary, sessile or short-peduncled in the axils; calyx 5-parted with 2 bractlets; rigid herbs, rough-pubescent. Spring to Fall.
- Sophranthe (*Gratiola*)
5. *hispida* (*G. subulata*). Hispid, usually clustered; leaves linear; corolla salverform, about twice as long as the calyx, white or purplish. Low pine-barrens.
5. (*G.*) *pliosa*. Hirsute, simple or sparingly branched; leaves ovate to oblong; corolla tubular, scarcely longer than the calyx, white. Low ground.
5. Sterile stamen as long as the others, and more or less bearded;—flowers in terminal racemes or panicles; calyx 5-parted; corolla 2-lipped, - - - - - *Pentstemon*, *Beard-tongue*
- P. *multiflorus*. Lower leaves spatulate or oblong, upper leaves few, oblong-lanceolate, decurrent; corolla white, staminodium nearly smooth. Pine-land. Spring to Summer.
5. Sterile stamen a minute rudiment, or absent, - - - - - 6
6. Calyx 5-toothed, - - - - - 7
6. Calyx 5-cleft, - - - - - 8
7. Corolla salverform;—flowers in elongated terminal spikes; calyx-tube 5-10 ribbed; corolla 5-lobed, tube curved, - - - *Buchnera*, *Blue-hearts*
- B. *elongata*. Stem scabrous, sometimes branched above; corolla blue or white, its tube less than twice as long as the calyx.
7. Corolla campanulate;—leaves narrow or scale-like; flowers solitary in the axils; corolla 5-lobed, somewhat 2-lipped, rose-purple, rarely white, - - - - - *Gerardia*
- G. *hifolia*. Leaves thickish, linear. Low pine-land. Fall.
- G. *aphylla*. Leaves few or scaly. Low pine-land. Fall.
- G. *fasciculata*. Leaves linear with tufts of smaller ones in the axils. Brackish soil. Summer and Fall.
- G. *maritima*. Leaves succulent, linear. Salt marshes. Summer.
- G. *filifolia*. Leaves mostly alternate, filiform, with smaller ones clustered in the axils. Pine-land. Fall.
7. Corolla bilabiate;—flowers mostly solitary in the axils; calyx-tube angled; corolla-tube with 2 ridges inside. Cultivated and in swamps. Summer and Fall. - - - *Mimulus*, *Monkey-flower*
- M. *Jamesii*. Flowers yellow. Only cultivated.
- M. *alatus*. Flowers blue, violet and white; pedicels stout, 4-winged; leaves petioled.
- M. *ringens*. Flowers blue, violet and white; pedicels slender, 2-winged above, leaves sessile.
8. Leaves palmately-veined - - - - - 9
8. Leaves pinnately veined, stems roundish;—leaves entire, toothed or 1-2 pinnatifid, pubescent or glandular; flowers in bracted racemes or panicles; corolla yellow, campanulate, 5-cleft, tube dilated;

- woolly within; anthersacs awned. - - *Dasystema*, *False Foxglove*
D. pectinata. Leaves lanceolate to ovate, 1-2 pinnatifid, segments finely toothed or incised; calyx densely glandular-hirsute, the segments toothed or pinnatifid; corolla widely dilated; capsules oval or elliptic, surpassed by the calyx-lobes. Sandy soil. Summer.
8. Leaves pinnately-veined;—stems 4-angled, erect or diffuse; flowers solitary on slender axillary pedicels subtended by two small bractlets; corolla 2-lipped, - - - *Mecardonia*
M. acuminata (*Herpestis nigrescens*). Stems and branches erect or ascending; leaves spatulate to elliptic; corolla white or pink, the upper lip bearded inside. Wet ground. Summer and Fall.
9. Corolla bell-shaped, lobes almost equal;—stems round, creeping succulent; flowers solitary on axillary peduncles; calyx with two small bractlets, - - - *Monniera*
M. Monniera (*Herpestis Monniera*). Stems and branches glabrous; leaves spatulate or cuneate; corolla white or pale blue. River banks. Spring to Fall.
9. Corolla two-lipped;—stems round, succulent, creeping, pubescent; flowers solitary on short axillary peduncles; calyx with two small bractlets, - - - *Septilia*
S. Caroliniana (*Herpestis amplexicaulis*). Leaves oblong, entire or undulate, clasping; corolla blue. About pine-land ponds. Spring and summer.
S. crenulata (*Monniera crenulata*). Leaves suborbicular, shallowly toothed, partly clasping; corolla blue; plant stouter than preceding.

143. Acanthaceae, *Acanthus* Family.

Chiefly herbs with simple, exstipulate leaves and bracted flowers; calyx 5-parted; corolla 2-lipped or almost regularly 5-lobed; stamens 4 didynamous, or 2 with or without another pair of abortive stamens; ovary free, 2-celled, with single style and 1-2 stigmas; fruit a 2-celled capsule, 4-several seeded.

1. Normal leaves only at the base of the stem, or crowded at the ends of the branches;—flowers in dense spikes; corolla more or less 2-lipped, white or blue; stamens 2, - - - *Tubiflora* (*Elytraria*)
T. Carolinensis (*E. virgata*). Stems scape-like, covered with alternate scales, the basal leaves oblong to spatulate, or linear; calyx-lobes bearded at the tips; corolla-lobes nearly equal, white. Riverbanks. Summer.
1. Normal leaves on the stem, - - - - - 2
 2. Corolla funnel- or salverform, lobes 5, somewhat unequal; stamens 4, - - 3
 2. Corolla strongly 2-lipped, stamens 2;—leaves opposite; flowers purple, on axillary peduncles, - - - *Dianthera*, *Water-willow*
D. angusta. Stem-leaves very few, linear; those at the base oblong-spatulate, peduncles with 2-few flowers near the end. Pine-barren ponds. Spring.
D. lanceolata. Leaves linear to elliptic-lanceolate; spikes slender, along the peduncles, which are longer than the leaves. Riverbanks. Summer.
3. Calyx-lobes bristle-like; anthers pointed at the base; ovules 2 in each cell;—leaves opposite; flowers solitary or clustered in the axils; corolla-tube slightly curved, limb somewhat 2-lipped, *Calophanes*

- C. humistrata*. Leaves few, oblong, with petioles shorter than the blades; calyx puberulent; corolla white. Low pine-land. Spring.
- C. oblongifolia*. Leaves oblong or the lower obovate, sessile or short-petioled, calyx hirsute; corolla blue with purple spots. Sandy pine-land. Spring to Fall.
3. Calyx-lobes linear or lanceolate; anthers not mucronate; ovules 3-10 in each cell;—leaves opposite; flowers solitary or clustered in the axils, or in terminal cymes or panicles; corolla-lobes somewhat unequal. Spring and Summer. - - *Ruellia*
- R. humilis*. Stems very short; leaves few, spatulate to oval, sessile; calyx bristly, with linear lobes; corolla blue to white with much dilated throat. Sandy soil.
- R. strepens*. Stems erect, simple or branched; leaves ovate to oblong, petioled; calyx bristly; corolla blue-purple or nearly white. Dry soil.
- R. hybrida*. Stems tall, somewhat spreading; leaves ovate to oblong, undulate or sinuate, short-petioled, with pale veins beneath; calyx minutely bristly; corolla blue or pale. Dry soil.

Fittonia is a genus, cultivated for the large heart-shaped leaves with brilliant venation; *F. Verschaffeltii* has red veins, *F. argyro-neura* has white veins.

Another cultivated genus is *Thunbergia*, mostly climbers with large 2-bracted flowers, as the blue *T. laurifolia* and its varieties; *T. alata* has a cream-colored corolla and dark-purple tube. *T. (Meyenia) erecta*, an erect shrub; the corolla with purplish border and yellowish throat; white and violet and blue varieties.

144. Pinguiculaceae (Lentibulariaceae), Bladderwort Family.

Scapose or caulescent herbs growing in water or wet places; leaves submerged and dissected, often bearing bladders,—or aerial, basal and entire, —or leaves wanting; flowers perfect, irregular; calyx of 2 or 5 sepals; corolla 2-lipped, saccate or spurred; stamens 2, included, filaments twisted; ovary free, 1-celled, with numerous ovules; style short with 2-lipped stigma, the lower lip covering the anthers; fruit a capsule.

1. Sepals 5; corolla-tube not closed by the palate;—scapose herbs in wet soil; leaves entire, forming a rosette at the base; scapes clustered, 1-flowered; sepals more or less united; corolla more or less 2-lipped, spurred. Spring. - - *Pinguicula*, *Butterwort*
- P. pumila*. Scapes not villous at the base; corolla light violet to white; spur longer than the sac-like base of the corolla, awl-shaped.
- P. elatior*. Scapes villous at the base; corolla purple to white; spur shorter than the sac-like base of the corolla, obtuse.
- P. lutea*. Scapes pubescent; corolla golden yellow; spur awl-shaped.
1. Sepals 2; corolla-tube closed by the palate;—aquatic or terrestrial scapose herbs with no stems or with stems creeping in wet soil, or more or less floating in the water; leaves dissected, and bladder-bearing or almost absent; flowers solitary or racemose; sepals slightly united; corolla 2-lipped and spurred. Spring to Fall. - - - *Utricularia*, *Bladderwort*

- a. Stems more or less floating with solitary scapes arising from the nodes.
 - U. *purpurea*. Leaves none; racemes 1-4 flowered; flowers violet-purple. Ponds.
 - U. *inflata*. Leaves dissected; each scape with a whorl of 6-9 inflated bracts; racemes 5-12 flowered; flowers yellow. Ponds.
- b. Stems converging towards the base of the scape or scapes.
 - U. *fibrosa*. Leaves numerous, dissected; racemes 2-5 flowered; flowers yellow, spur about as long as the upper lip of the corolla.
- c. Minute herbs; scapes solitary, rooting in the mud.
 - U. *cornuta*. Racemes spike-like, 2-8 flowered; corolla yellow. In sphagnous places.

145. Bignoniaceae, Trumpet-creeper Family.

Trees, shrubs erect or climbing, sometimes herbs, with exstipulate, chiefly opposite leaves, and showy monopetalous, irregular flowers; calyx 2-lipped, 5-lobed or truncate; corolla 2-lipped or 5-lobed, tubular or campanulate; fertile stamens 2, or 4 and didynamous, inserted on the corolla; ovary superior, 1-2 celled, many-ovuled; style 1 with mostly 2 stigmas; fruit a leathery or woody capsule, 2-valved, 2- or 4-celled and many-seeded.

- 1. Trees with simple leaves;—leaves deciduous, opposite or whorled, long-petioled, large; flowers in terminal panicles; calyx and corolla 2-lipped; fertile stamens 2, with 3 or more staminodia; capsule long, nearly round; seeds in 2-4 rows, flat, with the membranous testa extended into fimbriate wings. Cultivated. Spring. Catalpa
 - C. *bignonioides*. Panicles many-flowered; corolla white, with two rows of yellow spots in the tube and purple spots on the lower lip.
 - C. *speciosa*. Tree becoming twice as tall, with thick scaly bark; panicles few-flowered, lax; corolla as in preceding, generally less conspicuously spotted.
 - 1. Woody vines or shrubs with compound leaves, 2
 - 2. Calyx cup-shaped, truncate or slightly 5-toothed; capsule flattened parallel with its partition;—evergreen woody climbers with 2-3 foliate leaves, the terminal leaflet often represented by a tendril; corolla more or less 2-lipped; fertile stamens 4 and 1 sterile; capsule long and narrow. Bignonia, Trumpet-flower
 - B. *crucigera* (*capreolata*). Leaflets 2 and a forking tendril between; flowers in axillary clusters, red outside, yellow inside. Thickets and high climbing on trees. Spring.
 - B. *venusta*. Leaves opposite, leaflets 2, tendril small, not forked; flowers in thick drooping clusters, bright orange-red. Cultivated on trellis. Winter.
- Other cultivated species are *B. alba* with pure white flowers; *B. speciosa* with large glossy leaves and purplish flowers; *B. Tweediana* with small leaves and bright yellow flowers.
- 2. Calyx tubular-campanulate with 5 nearly equal lobes; capsule flattened at right angles to its partition, 3

3. Evergreen climbers; leaves odd-pinnate; flowers in clusters or panicles; corolla tubular-funnelform; ovules in several rows in each cell of the ovary. Campsis
- C. (*Tecoma*) *radicans*, *Trumpet-creeper*. A vine, climbing by aerial rootlets; leaflets 7-11, coarsely serrate; corymbs few-flowered; corolla red, scarlet or orange outside, yellow inside. Woods. Spring.
- Cultivated species are: *T. capensis* with clusters of bright red flowers; *T. jasminoides* with flowers white and pink center; *T. rosea* with purplish-pink flowers.
3. Erect, evergreen shrubs;—leaves odd-pinnate; flowers in terminal racemes or panicles; corolla funnelform; ovules in two rows in each cell of the ovary; capsule slender with leathery valves, *Stemolebium*
- S. (*Tecoma*) *stans*, *Yellow Elder*. A tall shrub; leaflets 7-9, sharply serrate; racemes many-flowered; corolla yellow. Cultivated. Summer.

146. Plantaginaceae, Plantain Family.

Chiefly acaulescent herbs with basal ribbed leaves and small, whitish flowers in long or short spikes at the top of a naked scape; calyx of 4 slightly united sepals; corolla 4-lobed, and like the calyx scarious or membranous; stamens 2 or 4 with versatile anthers; ovary superior, style and stigma single; fruit a capsule, 1-many seeded.

P. heterophylla. Leaves linear to filiform; stamens 2;—spikes slender, loosely-flowered; flowers dioecious or polygamous; calyx-lobes not longer than the bracts; seeds 10-30, dark-red.

P. Virginica. Leaves broad, spatulate to elliptic; stamens 4;—spikes dense; flowers dioecious; calyx-lobes longer than the bracts; seeds 2-4, golden-yellow.

147. Loranthaceae, Mistletoe Family.

Green parasitic shrubs, feeding on the sap of woody plants by means of haustoria; leaves opposite; flowers regular; calyx truncate or lobed; corolla of 2-6 more or less united petals; stamens 2-6; ovary 1-celled with a solitary ovule; pistil 1; fruit a berry.

Leaves leathery, persistent; flowers very small, dioecious, in short-jointed spikes; the sterile ones with a 3-, rarely 2-5 lobed corolla and 1 stamen at the base of each lobe; the fertile flowers with similar corolla and inferior ovary; berry subglobose. - *Phoradendron*, *Mistletoe*

P. flavescens. Green or yellowish, growing in bunches on the limbs of deciduous-leaved trees; leaves fleshy, spatulate to oblong, entire, short-petioled; berry white, with glutinous pulp and a flat oblong seed. Spring.

148. Rubiaceae, Madder Family.

Herbs, shrubs and trees with simple leaves, which are opposite and united by interpetiolar stipules, or whorled; flowers regular, perfect or polygamous, in

cymes, panicles or heads; calyx 3-6 lobed or toothed, or truncate; corolla of 3-6 more or less united petals; stamens distinct or united, alternate with the corolla-lobes and of the same number; ovary more or less adnate to the calyx-tube, 2-5 celled with 1-many ovules in each cell; styles partly united, with 2-many stigmas; fruit a capsule, drupe or berry.

1. Leaves and stipules 4-7 in a whorl;—herbs with 4-angled stems; stipules often as large as the leaves; flowers small on axillary peduncles or in cymes; calyx truncate, corolla rotate with 3-4 lobes; ovary 2-celled and ovules solitary; styles 2; fruit of 2 globular indehiscent carpels. Summer. - - *Gallium, Bedstraw*
- G. *circasians*. Glabrous; stems branched from the base; leaves and stipules 4 in a whorl, ovate to oval, nearly sessile; flowers few, greenish, lobes 4 acuminate. Dry woods.
- G. *hispidulum*. Almost glabrous; branches decumbent; leaves and stipules 4 in a whorl, elliptic-oblong, rather thick; flowers in clusters of 3 or 5, greenish white, lobes 4 acute and hairy. Dry sandy soil.
- G. *triflorum*. Somewhat hispid; branches weak, reclining; leaves and stipules 6 in a whorl, broadly-linear to elliptic, mucronate; flowers in clusters of 3, greenish or yellowish-white, lobes 4 acuminate; sweet-scented. Low shaded places.
1. Leaves opposite or in whorls of 3, - - - - 2
2. Shrubs or small trees, - - - - 3
2. Herbs, - - - - 4
3. Flowers in heads, solitary or paniced, axillary or terminal;—sepals 4 with bristle-like or chaffy bractlets; corolla tubular-funnel-form with 4 lobes, white; ovary 2-celled with solitary ovules; seeds with white arils, - - *Cephalanthus, Button-Bush*
- C. *occidentalis*. Glabrous, diffusely branched; leaves oblong to lanceolate; peduncles longer than the heads. Marshy ground. Summer.
3. Flowers in corymbose cymes, terminal or axillary;—stipules narrow, caducous; flowers showy, 5-parted; corolla tubular, greenish with brown or purple blotches, pubescent inside; ovary 2-celled with numerous ovules in each cell; fruit a capsule, - - *Pinkneya*
- P. *pubens*. Leaves oblong to oval, large; sepals linear, but some of them larger, ovate and pink colored. Riverbanks. Spring and Summer.
3. Flowers in 2-3 forked cymes, disposed in pedunculate terminal umbels;—sepals 5; corolla tubular to campanulate, scarlet-orange, 5-lobed; ovary 5-celled with numerous ovules in each cell; fruit a small black berry. Cultivated. Summer and Fall. - *Hamelia patens*
3. Flowers in few-flowered cymes; broad-leaved evergreen with large white double flowers, fragrant; calyx ribbed, with 5 long teeth. Cultivated. - - *Gardenia florida (jasminoides), Cape Jessamine*

Here belongs also the genus *Coffea*, *Coffee-plant*, with the creamy-white fragrant flowers in clusters, subsessile in the axils.

4. Ovary 2-celled, fruit 2-carpeled, - - - - 5
4. Ovary 3-4 celled, ovule solitary in each cell, - - - - 9
5. Ovule solitary in each cell, - - - - 8
6. Ovules several in each cell. - - - - 6

6. Flowers 4-parted. - - - - - 7
6. Flowers 5-parted;—glabrous; stipules entire or 2-8 toothed; corolla broadly funnelform, white; capsule 2-celled with numerous seeds, - - - - - Pentaden
- P. (Oldenlandia) Halei. Stems weak, branching, decumbent; leaves oblong to oblong-lanceolate, narrowed into margined petioles. Swampy ground. Summer.
7. Capsule enclosed in the calyx-tube;—herbs or somewhat woody plants with narrow leaves and stipules; flowers solitary or in few-flowered clusters; corolla rotate to funnelform, white or pink. Spring to Fall. - - - - - Oldenlandia
- O. uniflora. Pubescent; leaves ovate to oblong; sepals ciliate. Moist sand.
- O. fasciculata. Glabrous; leaves oblong to lanceolate, sessile; sepals ciliate. Beach.
- O. Bosell. Glabrous, shrubby; leaves linear; sepals not ciliate. Wet sand.
7. Capsule free at the apex;—herbaceous or somewhat woody below, often with ciliate leaves; flowers often dimorphous, solitary or in corymbose cymes; corolla funnelform or salver-shaped, Houstonia, Blueia
- H. caerulea, Innocence. Stem erect; leaves mainly basal, blades oval or ovate, as long as the petioles; corolla lilac, blue or white, with yellow eye. Moist soil. Early Spring.
- H. rotundifolia. Stem prostrate; leaves fleshy, oval to roundish, narrowed into a short petiole; corolla white; numerous cleistogamous flowers. In patches, in damp soil. Early Spring.
- H. angustifolia. Stem much branched at the base; leaves linear, often clustered; corolla white, very hairy inside. Sandy pine-barrens. Spring and Summer.
8. The mature carpels indehiscent, separating from each other;—stems or branches prostrate; leaves sessile, narrow, with sheathing stipules; flowers axillary; calyx 2-4 parted; corolla funnelform or salverform, 4-lobed, - - - - - Diodia, Button-weed
- D. Virginiana. Leaves almost glabrous, oblong or oblong-spatulate; corolla salverform, white. Wet soil. Spring to Fall.
- D. teres. Leaves hairy, linear to linear-lanceolate; corolla funnelform, white or pinkish. Dry soil. Summer.
8. The mature carpels dehiscent, opening on the inner face;—otherwise like Diodia, - - - - - Borreria
- B. parviflora. Glabrous herb, with almost linear, sessile leaves; flower-clusters subglobose; corolla white, shorter than the calyx. Waste places. Summer.
8. One of the mature carpels indehiscent, the other dehiscent and opening on the inner face;—otherwise like preceding, - - - - - Spermacoce
- S. glabra. Stem 4-angled, erect or with spreading branches; leaves oblong to oblong-lanceolate, short-petioled; flower-clusters subglobose; corolla white, not shorter than the calyx; tube villous in the throat. River-banks. Summer.
9. Flowers paired, with the ovaries united, on one axillary or terminal peduncle;—evergreen herb with creeping stem; calyx 4-toothed; corolla 4-lobed, funnelform; ovary 4-celled, stigmas 4; flowers dimorphous; fruit of two 4-seeded drupelets, crowned with the persistent calyx, - - - - - Mitchella, Twin-berry, Partridge-berry

M. repens. Usually in patches; leaves ovate to roundish, petioled; flowers fragrant, white or pinkish; fruit red or white. Shady woodland. Spring.

9. Flowers in terminal, involucrate clusters;—pubescent; stipules fringed; calyx 4-8 toothed; corolla 3-5 lobed; stigmas 3-4. - - *Richardia*
R. scabra. Leaves oblong to lanceolate, undulate, nearly sessile; involucre of two unequal pairs of bracts; corolla funnellform, 6-lobed, white or pink. Sandy soil. Summer.

149. *Caprifoliaceae, Honeysuckle Family.*

Mainly trees and shrubs, the latter often twining, with opposite, mostly exstipulate leaves; flowers clustered, 3-5 parted; corolla tubular or rotate, the stamens alternate with its lobes and adnate to its tube; ovary inferior; fruit a berry or drupe.

1. Corolla rotate, 5-lobed, - - - - 2
 1. Corolla tubular to long-campanulate, 2-lipped or 5-lobed, - - - 3
 2. Leaves odd-pinnate; fruit a baccate drupe with 3-5 1-seeded stones;—shrubs or small trees with chiefly 5-parted white flowers in umbel-like corymbose cymes; drupes deep purple. Low ground. Early Summer. - - *Sambucus Canadensis*, *Elder*
 2. Leaves simple; fruit a fleshy drupe with single stone;—shrubs or small trees with 5-parted white flowers in corymbose cymes,

Viburnum, *Haw*, *Sloe*

V. nudum. Shrub, obscurely pubescent; leaves petioled; cymes shorter than the peduncles; drupes deep blue. Swampy ground. Spring and Summer.

V. obtusum. Shrub or slender tree, glabrous; leaves narrowed into a petiole; cymes sessile; drupe black. Swampy ground. Spring.

3. Flowers in pairs on axillary peduncles, with 2 bracts and 2 bractlets; corolla 2-lipped, upper lip 4-lobed, lower lip narrow;—climbing vine with short-petioled, oblong or ovate leaves; corolla white, turning yellow, pubescent outside; berries black. Cultivated.
Nittoa (Lonicera) Japonica, *Japanese Honeysuckle*

3. Flowers in whorls, sessile; corolla 2-lipped or with 5 nearly equal lobes;—evergreen twining vine with oval or oblong leaves, the upper pairs connate; corolla scarlet or orange outside, yellow inside; berries scarlet. Margins of swamps and cultivated.

Lonicera sempervirens, *Coral Honeysuckle*, *Woodbine*

3. Flowers solitary or in axillary cymes, often paniced; corolla 5-lobed or sometimes slightly 2-lipped;—shrubs with spreading, more or less arching branches, and petioled serrate leaves; corolla white, yellowish, or pink to crimson; fruit a slender 2-celled capsule with numerous minute seeds. Cultivated. - - *Diervilla*, *Weigella*

150. *Asaraceae (Aristolochiaceae), Birthwort Family.*

Herbs or woody vines with alternate, petioled, mostly cordate or hastate leaves, and solitary or clustered flowers; calyx present, corolla rudimentary or absent; stamens as many as calyx-lobes, or more; ovary inferior, usually 6-celled; fruit a capsule.

Flowers irregular, variously inflated; calyx colored; stamens 6, rarely 4-10, adnate to the 4-6 angled column formed by the styles; capsule pendulous, 4-6 valved with numerous seeds.

Aristolochia, Dutchman's Pipe

A. tomentosa, Pipe-vine. Woody twiner with broadly-ovate cordate leaves, on short tomentose petioles; calyx-tube tomentose, yellowish green; the expanded 3-lobed limb greenish-purple with a dark-brown center. River-banks. Early summer.

Many species are cultivated as: *A. elegans* with dark-purple flowers, blotched and waved with creamy-white; *A. floribunda* with purplish-red flowers and yellow centers; *A. ridicula* or *Donkey Ears*, pale yellow with purplish veins, the limb consisting of two narrow lobes; *A. grandiflora*, *Goose-flower* or *Pelican-flower*, purple-blotched, and terminating in a slender filament.

151. Cucurbitaceae, Gourd Family.

Succulent herbs, usually trailing, or climbing by means of lateral tendrils; leaves alternate, palmately veined or lobed; flowers monœcious or diœcious; calyx 5-toothed; corolla with 5 petals, distinct, or more or less united, and inserted on the calyx; stamens 3-5, distinct or variously united, anthers often contorted; ovary inferior, 1- or 3-celled; style 1, stigmas mostly 3; fruit a fleshy or pulpy berry (PEPO); seeds rarely solitary, mostly numerous.

1. Corolla yellow or orange, - - - - - 2
 1. Corolla white, sometimes striped with green, - - - - - 4
 2. Corolla rotate, 5-cleft, - - - - - 3
 2. Corolla campanulate, 5-lobed;—leaves thick, 3-5 lobed, cordate; flowers showy, monœcious, solitary; sterile flowers with 3 stamens; fertile flowers with 3 staminodia, a 1-celled ovary, and 3-5 stigmas, 2-lobed; calyx-tube bristly, sepals linear; corolla bright yellow or light orange, pubescent; berries green, variegated with paler green or yellow. Cultivated as *Pumpkin* and *Squash*. - - - - - *Cucurbita*
 3. Tendrils 2-3 branched; leaves 3-7 lobed, the lobes toothed or again lobed; connectives not extended beyond the anther-cells;—stems stout, trailing, zigzag; flowers pale yellow, monœcious, solitary; sterile flowers with 3 short stamens; fertile flowers with staminodia, an elongated ovary, and reniform stigmas; pepo large, seeds white or black. Cultivated, and running wild as *Citron*. - - - - - *Citrullus vulgaris, Watermelon*
 3. Tendrils simple; leaves entire or 3-7 lobed, the lobes shallowly toothed; connectives extended beyond the anther-cells;—stems trailing or climbing, roughly pubescent; flowers yellow, monœcious; sterile clustered, with 3 short stamens; fertile flowers solitary, without staminodia, 1-celled ovary and obtuse stigmas; pepo pulpy, with numerous whitish seeds. Cultivated. - - - - - *Cucumis*
- C. melo, Musk-melon, Cantaloupe.* Leaves toothed or shallowly lobed; fruit smooth; the softer-rinded kinds are called: *Nutmeg- or Netted Melon.*

C. sativus, Cucumber. Leaves lobed, the middle lobe more prominent; fruit oblong, prickly when young.

C. Anguria, Gherkin. Leaves sinuate-lobed; fruit ovoid, prickly.

4. Corolla with 5 distinct petals; fruit of various shapes, smooth, many-seeded;—stems climbing by means of 2-branched tendrils; foliage clammy-pubescent; leaves ovate-cordate, toothed or sometimes 3-5 lobed; flowers monocious, solitary; the sterile long-pedicelled, with 5 distinct stamens; the fertile short-pedicelled, with 3 thick 2-lobed stigmas; pepo with a woody rind and fleshy pulp. Waste places and planted.

Legenaria vulgaris, Bottle Gourd, Calabash

4. **The Luffa, Rag-gourd or Dishcloth-gourd,** is grown for the fibrous interior of the dried fruit, which when bleached and prepared may be used as bath-sponge, etc.—Flowers monocious; the sterile in a long-peduncled raceme, the fertile solitary or short-peduncled; corolla yellowish-white; stamens 3 on the calyx-tube; pepo gourd-like, dry when ripe.
4. Corolla rotate, 5-lobed; fruit variable in shape, prickly, 1-seeded;—stems climbing by 3-5 branched tendrils; foliage viscid-pubescent; leaves angular-lobed, rarely 3-5 lobed; flowers monocious; the sterile in long-peduncled racemes with stamens united and anthers distinct or united; the fertile flowers from the same axils in short-peduncled clusters, without staminodia; the 3 stigmas on a short style; pepo membranous. Riverbanks.

Sicyos angulata, Star Cucumber, Nimble Kate

152. Campanulaceae, Bell-flower Family.

Herbs with alternate, exstipulate simple leaves and perfect, regular flowers; calyx 3-5 lobed; corolla 5-lobed; stamens 5, free from the corolla, distinct, often ciliate; ovary inferior, 2-5 celled; style single, often hairy above; stigmas as many as the cells in the ovary; fruit a capsule with many seeds.

1. Corolla campanulate; inflorescence racemose or paniculate;—calyx and corolla 5-lobed; stamens 5, broad below; ovary 3-5 celled, stigmas 3-5.
- Campanula, Bell-flower*
- C. Floridana.** Smooth; stems wiry, reclining; leaves lanceolate, sessile; corolla small, as long as the sepals, blue or pale-purple. Around lakes. Spring and Summer.
1. Corolla rotate; inflorescence spicate;—flowers of two kinds, the earlier ones cleistogamous, usually with 3-4 lobed calyx and an undeveloped corolla; the later ones with calyx and corolla 5-lobed; stamens 5; ovary 3 celled and stigmas 3. Fields. Spring to Fall.
- Specularia, Venus' Looking-glass*
8. **perfoliata.** Stem erect, prickly on the angles; leaves triangular-cordate, crenate or serrate, clasping; flowers 1-several, sessile in each axil, blue.
 8. **biflora.** Stem erect, prickly on the angles; leaves ovate, oblong or lanceolate, entire or crenate-serrate, sessile; flowers 1-2 in an axil, sessile, blue.

153. Lobeliaceae, Lobelia Family.

Herbs with milky poisonous sap; leaves simple, alter-

nate, exstipulate; flowers irregular, 5-parted, corolla often bilabiate, the tube split on one side to the base; ovary inferior, 2-5 celled, with 1 style and fringed stigmas; fruit a 1-many celled capsule or a berry; seeds numerous.

Flowers in spikes, racemes or panicles subtended by bracts; stamens monadelphous, anthers in a ring around the style, all, or 2 of them, bearded at the apex; ovary 2-celled; stigmas 2-lobed, - - Lobelia

1. Corolla red;—stem stout, usually simple; leaves oblong or elliptic to lanceolate, serrate or dentate; flowers in a slender raceme. Muddy banks. Summer and Fall. - *L. cardinalis*, *Cardinal-flower*
1. Corolla blue or white, - - - - - 2
2. Sepals with deflexed auricles at the base;—more or less hairy; stem simple, slender; leaves lanceolate or oblong, nearly entire; the lower short-petioled, the upper sessile; flowers bright blue, in slender often one-sided racemes. Low ground. Late Summer. *L. puberula*
2. Sepals without auricles, - - - - - 3
3. Corolla large, about 2 cm. long;—plant glabrous; stem erect or decumbent, simple; leaves few, linear, thick, sessile; flowers pale blue, in one-sided 2-4 flowered racemes. Wet pine-land. Spring to Fall. - *L. glandulosa*
3. Corolla small, less than 1 cm. long, - - - - - 4
4. Stem scape-like;—plant smooth; stem simple or branched above; leaves mostly basal, linear to lanceolate-spatulate; sessile or petioled; flowers pale blue or white, in slender racemes. In and about pine-barren swamps. Spring to Fall. - *L. paludosa*
4. Stem leafy, - - - - - 5
5. Stem-leaves sessile, - - - - - 6
5. Stem-leaves petioled;—glabrous; stem slender, erect or branched at the base; leaves few, entire or crenate, below reniform or orbicular, above obovate or ovate; flowers bright blue in few-flowered racemes. Flat pine-land. Summer and Fall. - *L. Feayana*
6. Stem-leaves lanceolate; flowers in dense racemes;—nearly smooth; stem slender, erect, simple; basal leaves obovate to suborbicular, and sessile like the stem-leaves; flowers blue or white in a spike-like raceme. Dry soil. Late Summer. - *L. spicata*
6. Stem-leaves filiform; flowers in lax racemes;—glabrous; stem slender, erect, hollow, simple or sparingly branched; leaves few, sessile; flowers bright blue. In pine-land ponds. Summer. *L. Boykinii*

154. Ambrosiaceae, Ragweed Family.

Herbs, rarely shrubs, with alternate leaves, or on the lower part of the stem opposite; flowers very small in inconspicuous heads; involucre of few bracts; staminate flowers tubular, 5-toothed; stamens 5, distinct, with anthers converging; corolla of pistillate flowers a short tube, or wanting; calyx a mere border or absent; ovary

1-celled with 2 hairy stigmas; achenes naked, or enclosed in the accrescent nut-like or bur-like involucre.

1. Sterile and fertile flowers in different heads;—the sterile heads in terminal spikes or racemes, the fertile heads solitary or clustered below the sterile; the staminate involucre cup-shaped of 5-12 partially united bracts and 5-20 flowered; receptacle flat, naked or with filiform chaff; the pistillate involucre turbinate or subglobose, 1-flowered, with several spines or tubercles in one row; corolla wanting; achenes without pappus; flowers whitish. Summer and Fall. *Ambrasia, Bayweed*
1. trifida. Stems very tall, 4-sided, rough; leaves all opposite, palmately 3-5 lobed or merely toothed, lobes serrate; receptacle naked. Riverbanks or moist soil.
1. artemisiifolia. More or less hirsute; leaves opposite and alternate, bipinnatifid, pinnately parted, or the upper ones entire or merely toothed; receptacle chaffy. Waste places.
1. hispida. Hirsute to hispid; leaves mostly opposite, 2-3 pinnatifid, or pinnately divided; receptacle chaffy. Dune-land.
1. Sterile and fertile flowers in the same heads;—heads small, axillary, drooping; bracts of the involucre few; receptacle chaffy; flowers inconspicuous, whitish; the marginal ones, 1-3, pistillate with tubular corollas; the central ones perfect but sterile, with funnel-form corolla, 5-lobed; achenes without pappus. Summer and Fall. *Iva, Marsh Elder*
1. imbricata. Somewhat shrubby, smooth; leaves mostly alternate, numerous, fleshy, linear, entire, sessile; heads short-peduncled; bracts 2-9 suborbicular. In sand, on the coast.
1. frutescens. Shrubby; leaves mostly opposite, pubescent, ovate to linear, serrate, short-petioled; heads short-peduncled; bracts 2-5, orbicular. Salt marshes.
1. microcephala. Annual, rough; leaves often alternate, narrowly linear, entire or slightly toothed; heads sessile; bracts 2-5, narrowly linear. Dry pine-land.

155. Carduaceae, Thistle Family.

Herbs, rarely shrubs with opposite, alternate, or all basal leaves without stipules; flowers in a head, on a receptacle, surrounded by an involucre; calyx of bristles, awns or scales, forming pappus at maturity, or calyx absent; corolla of 5 petals, for the greater part united; stamens 5, alternate with the corolla-lobes, the anthers syngenesious; ovary inferior, 2-carpeled, 1-celled, with 1 style and 2 stigmas; fruit an achene.

- | | | | | |
|--|---|---|---|----|
| 1. Heads discoid, i. e. corollas all tubular, | - | - | - | 2 |
| 1. Heads radiate, i. e. central corollas (disk-flowers) tubular, and marginal corollas (ray-flowers) ligulate, | - | - | - | 12 |
| 2. Heads with the flowers all perfect, | - | - | - | 3 |
| 2. Heads with the central flowers perfect, marginal flowers pistillate, | - | - | - | 11 |
| 2. Heads discoid;—shrubs with alternate leafy leaves and heads in | | | | |

corymbs or panicles; bracts in several rows; receptacle flat, pitted, without chaff; corollas of staminate heads tubular, of pistillate heads filiform; pappus of the former short, of the latter consisting of long hair-like bristles in 1-2 series; flowers white.

Baccharis

B. halimifolia. Leaves numerous, suborbicular to linear-elliptic; heads numerous in peduncled clusters of 3-5. Along the coast. Summer and Fall.

B. glomeruliflora. Leaves rather few, spatulate to cuneate-obovate; heads solitary and sessile, or few in nearly sessile clusters. About pine-land swamps. Fall and Winter.

B. angustifolia. Leaves numerous, linear; heads numerous or few in peduncled clusters, or solitary on short peduncles. Brackish marshes. Fall.

3. Flowers yellow;—rigid herbs with alternate leaves and small heads often in corymbs; bracts in several rows; receptacle flat, sometimes with teeth around the depressions; pappus of 1-2 series of rigid hair-like bristles. In pine-land. Summer.

Chondrophora (Bigelovia)

C. nudata. Stems mostly simple, wand-like; leaves mainly basal, spatulate-lanceolate, the stem-leaves scattered, linear.

C. virgata. Similar to preceding; lowest leaves linear-spatulate, the stem-leaves filiform; heads larger.

3. Flowers white, blue or purple, - - - - - 4
 4. Receptacle chaffy, - - - - - 5
 4. Receptacle bristly; leaves spine-tipped;—herbs with sessile or decurrent, alternate or basal, toothed, lobed or pinnatifid leaves; involucre of many rows mostly spine-tipped; receptacle flat or convex; pappus of plumose bristles, - *Carduus* (*Cirsium*), *Thistle*
C. repandus (*C. repandum*). Stem very leafy, the leaves spreading; narrow-oblong in outline, pinnately-lobed; plant webby; flowers purple. Dry pine-land. Spring to Fall.
C. (C.) LeContei. Stem woolly, leaves erect or ascending, lanceolate in outline, pinnatifid; flowers purple. Low pine-land. Spring to Fall.
C. Virginianus (*C. Virginianum*). Stem slender, webby; leaves few, linear to linear-oblong with revolute margins; flowers purple. Low pine-land. Summer.
C. (C.) Nuttallii. Stem tall, angled; leaves decurrent, numerous; the lower ones broadly oblong, twice pinnatifid; the upper ones smaller, pinnatifid; flowers white or pale purple. Dry soil. Spring and Summer.
C. spinosissimus (*C. horridulum*). Stem woolly; lower leaves spatulate in outline, twice pinnatifid; the upper ones oblong to lanceolate in outline, often pinnatifid; heads surrounded by a whorl of spiny bracts; flowers mostly purple (var. *Ellioti*), or yellowish. Sandy soil. Spring and Summer.
 4. Receptacle naked, - - - - - 6
 5. Leaves opposite; flowers white;—rough herbs with 3-4 angled stems and peduncled heads; bracts in 2-3 rows; pappus of 2-several caducous awns, - - - - - *Melanthera*
M. nivea (*hastata*). Stems blotched with purple; leaves hastately-lobed, serrate; bracts of involucre scale-like. Light soil. Spring and Summer.
 5. Leaves alternate; flowers purple;—erect herbs with showy heads in terminal corymbose cymes; bracts in several rows, appressed; pappus of plumose or barbed hair-like bristles. - - *Carpophorus*
C. corymbosus. Stem tall and like the leaves pubescent; lower leaves spatu-

late to oblong, upper ones much smaller and sessile; heads numerous, bracts of involucre scarious-margined. Sandy pine-land. Summer and Fall.

6. Bracts of the involucre in one row;—stems corymbosely branched; leaves alternate; heads corymbose; bracts about 5, but often accompanied by a few small ones at the base; pappus copious, of soft capillary bristles; flowers white or pinkish.

Mesadenia (Cacalia), Indian Plantain

M. (C.) ovata. Stem terete; leaves ovate to oval, 3-5 palmately-veined, the lowest long-petioled; heads often numerous. Swampy woods. Summer.

M. (C.) lanceolata. Stem terete; leaves linear to lanceolate, with margined petioles; heads relatively few. Wet pine-land. Spring to Fall.

6. Bracts of the involucre in 2-several rows, - - - 7

7. Pappus double, the outer series of scales or stout bristles, the inner of rough, hair-like bristles;—herbs or shrubby plants with alternate leaves and purple heads in panicle or corymbed cymes; bracts in several rows. Summer. - - - *Vernonia, Iron-weed*

V. scaberrima. Leaves hirsute, later smooth, linear to linear-oblong, entire or minutely toothed; bracts of involucre with rigid subulate tips; pappus purplish. Sandy soil.

V. ovalifolia. Leaves sparingly pubescent, elliptic to oblong-lanceolate, coarsely toothed; bracts of involucre lanceolate to oblong, acute or cuspidate; pappus light yellow or pale purplish. Dry woods.

V. angustifolia. Leaves nearly smooth, narrowly linear; bracts of involucre lanceolate to oblong, with somewhat spreading tips; pappus purplish. Sandy soil.

7. Pappus single or double, bristly from a scale-like base;—erect herbs, 3-9 dm. tall, corymbosely branched or simply forked above; the small 3-5 flowered heads collected into glomerules which are subtended by 2 or 3 leaf-like bracts; the purple, blue or whitish corollas deeply cleft on the inner side; stigmas pubescent. Sandy soil. Summer and Fall. - *Elephantopus, Elephant's Foot*

E. Carolinianus. Stem hairy; leaves hairy, chiefly cauline, oblong to oval, crenate and repand.

E. tomentosus. Stem hirsute; leaves hirsute-tomentose, chiefly basal, oblong to oblanceolate, crenate-serrate.

7. Pappus in 1-2, rarely more, series of barbed or plumose bristles, - - - 8
7. Pappus in 1 series of hair-like bristles, - - - - - 10

8. Perennial caulescent herbs, - - - - - 9

8. Low shrubs;—leaves numerous, alternate, leathery; heads in dense corymbose cymes; bracts herbaceous in about 5 rows of 3-4 each; anthers appendaged at the top; pappus in 2-more series, copious, - - - *Garberia (Liatris)*

G. (L.) fruticosa. Leaves spatulate or obovate, pale; heads 5-flowered, crowded. Sandy soil. Spring to Fall.

9. Bracts of involucre nearly equal, slightly imbricated; heads in thyrsoid or corymbose panicles;—leaves alternate, the basal ones with broad petioles, the cauline ones sessile or clasping; flowers purplish or white. Late Summer. - - - *Trillia (Liatris)*

T. (L.) paniculata. Stem viscid-pubescent; leaves smooth, elliptic to lanceolate; heads mostly 5-flowered, in thyrsoid panicles. Damp pine-barrens.

T. (L.) *odoratissima*, *Vanilla-plant*, *Deer-tongue*. Stem smooth; lowest leaves spatulate or oblong, the upper oval or oblong, small, sessile; heads mostly 7-8 flowered, in corymbose panicles. Flatwoods.

9. Bracts of involucre in several rows, the inner successively longer; heads mostly in spikes or racemes;—leaves alternate; heads rose-purple or white. Summer and Fall.

Laciniaria (Listris), *Button Snakeroot* or *Blazing Star*.

L. *elegans*. Leaves numerous, linear; spikes or racemes dense, heads 4-5 flowered; outer bracts inconspicuous, the inner magenta or rose-colored; corollas white. Dry soil.

L. *graminifolia*. Leaves numerous, linear, fringed near the base; spikes or racemes often very dense, heads 7-14 flowered; bracts oblong-ovate to nearly linear, with scarious margins. Dry soil.

L. *tenatifolia*. Leaves linear, crowded on the lower, and scattered on the upper part of the scape-like stem; spikes or racemes slender, heads 5-flowered; bracts ovate to linear. Dry pine-land.

L. *Chapmanii*. Leaves narrowly linear, numerous on the lower, much reduced and sessile on the upper part of the rigid stem; spikes dense, plumose when mature, heads mostly 3-flowered; bracts ovate to lanceolate. Sand-hills.

10. Erect herbs or shrubby plants;—leaves alternate, opposite, or whorled; heads in corymbs or panicles; involucre narrow with scarious or membranous bracts; anthers appendaged at the apex. Spring to Winter.

Eupatorium

a. Leaves compound with narrow-linear segments.

b.

a. Leaves simple, at most toothed or incised.

c.

b. Leaves very numerous, with narrow-linear segments;—plant fennel-scented; heads 3-5 flowered, in panicles; bracts lanceolate with scarious margins; corolla white. Old fields.

E. capillifolium (fennel-scentum), *Dog-fennel*

b. Leaves numerous, compound on the lower part of the stem to entire on the upper part, segments linear;—heads 5-flowered, in panicles; bracts narrowly lanceolate; corolla white. Dry soil.

E. compositifolium (*ceranepifolium*).

c. Leaves merely opposite, not connate.

d.

a. Leaves clasping or connate-perfoliate;—leaves lanceolate, finely crenate-serrate; heads numerous, about 15-flowered; bracts linear-lanceolate, scarious; corollas white, pink or bluish. Low ground.

E. perfoliatum, *Bone-set*

c. Leaves in whorls of 3-6;—stems purplish; leaves oblong, ovate or oval, serrate; corymbs somewhat elongated, round-topped; corollas pink or purple, rarely white. Moist soil.

E. purpureum, *Joe Pye Weed*

d. Leaves thickish, ovate to lanceolate, crenate; heads 8-15 flowered; bracts linear; corollas white. Dry woods.

E. aromaticum

d. Leaves linear to lanceolate, scarious, somewhat remote; heads few, in corymbs; bracts lanceolate to linear; corollas white. Low pine-land.

E. lanceolatum

d. Leaves oblong to lanceolate, crenate-serrate, bright-green; outer bracts nearly linear, the inner white, petal-like; corollas white. Dry pine-land.

E. petaloideum

d. Leaves elliptic, serrate; heads numerous, in corymbs; bracts lanceolate to oblong; corollas white. Low pine-land.

E. scaberrimum

10. Herbaceous twining vines;—leaves opposite, slender-petioled, cordate to hastate; heads 4-flowered, in corymbose clusters; bracts 4 or 8, nearly equal; flowers white or pink. - *Willughbeya* (*Mikania*) *W. (M.) scandens*. Stems sometimes densely matted; heads numerous with narrow involucre and linear bracts. Swampy places. Summer and Fall.
11. Bracts of the involucre broad, in few rows, persistent;—herbs or shrubs with stems branched above; leaves alternate, oblong to ovate, prominently veined, petioled, or the upper sessile and clasping; heads in cluster-like cymes; receptacle flat, naked; central flowers perfect but mostly sterile; anthers sagittate; pappus a single row of scabrous capillary bristles,
Pluchea, Marsh Fleabane
P. foetida, L. (*bifrons* D. C.) Heads pale purple or white, in almost sessile clusters; inner bracts acute, the outer acuminate, ciliate near the tips. Low ground. Spring and Summer.
P. longifolia. Leaves firm, mucronate; heads purplish, in dense terminal clusters; bracts ciliate, the inner acute, the outer more obtuse. Swamps. Summer.
P. purpurescens. Leaves short-petioled; corollas bluish-purple; bracts granulose, the inner acute or acuminate, the outer mucronate. Sandy soil. Summer and Fall.
P. camphorata. Leaves thickish, nearly sessile; heads light purple, in dense clusters; bracts ciliate, the inner long-acuminate. Salt marshes. Summer and Fall.
11. Bracts of the involucre linear, in few rows, deciduous at maturity;—herbs with the leaves alternate, mostly tomentose or woolly, decurrent on the stem; heads in compact spikes; receptacle naked or minutely hairy; central flowers perfect but mostly sterile; anthers sagittate; pappus a single series of equal capillary bristles, - *Chaemolobus* (*Pterocaulon*), *Black-root*
C. undulatus (*P. pycnostachyum*). White-tomentose; stem simple; leaves oblong to lanceolate, wavy, smooth above; spikes stout, woolly, white. Sandy pine-land. Spring and Summer.
12. Bracts of the involucre scarious, in several rows;—herbs with woolly foliage; leaves narrow, alternate, sessile or decurrent; receptacle usually pitted; anthers sagittate; pappus a single row of capillary bristles, - *Gnaphalium*, *Cudweed*, *Everlasting*
G. obtusifolium (*polyccephalum*), *Rabbit Tobacco*. White, woolly; leaves linear, sessile, the basal ones oblanceolate; heads numerous with few perfect flowers, corymbose; bracts white or rusty. Dry soil. Summer and Fall.
G. purpureum. White-woolly or silvery; leaves spatulate to linear; heads crowded, in spikes or racemes. Common. Spring to Fall.
12. Ray-flowers pistillate, - - - - - 13
 12. Ray-flowers neutral, - - - - - 30
 13. Disk-flowers perfect and fertile, - - - - - 14
 13. Disk-flowers perfect and sterile, - - - - - 27
 14. Receptacle naked, - - - - - 15
 14. Receptacle pitted, - - - - - 18
 14. Receptacle chaffy, - - - - - 22
 15. Ray-flowers yellow, - - - - - 16
 15. Ray-flowers white or purple, - - - - - 17

16. Bracts of involucre narrow, mainly in 1 row, the few outer bracts irregular;—herbs with alternate, sometimes mainly basal leaves, pinnatifid or parted; pappus copious, of capillary bristles,
Senecio, *Squaw-weed*, *Groundsel*
 S. *obovatus*. Leaves near the base of the stem, spatulate to obovate, narrowed into broad petioles; few stem-leaves pinnatifid; heads in corymbs, deep yellow. In moist soil. Spring.
 S. *tomentosus*. Pale tomentose; leaves mainly basal, oblong to oblong-lanceolate, with petioles longer than the blades; stem-leaves few, the upper sessile; heads rather large, deep yellow. Sandy soil. Spring.
16. Bracts of involucre narrow, in 1-2 rows, spreading or reflexed;—herbs with alternate, often decurrent leaves, entire or toothed; heads peduncled; pappus of 5-8 pointed or awn-tipped scales,
Helenium, *Sneeze-weed*
 H. *autumnale*. Stems branched, leaves oblong to elliptic, often acuminate; receptacle subglobose. Low ground. Late Summer and Fall.
17. Pappus a scaly cup or wanting;—herbs with alternate, toothed to dissected leaves; bracts of involucre in several rows; receptacle flat or convex; disk-flowers with round or winged corolla-tubes and truncate or brush-like stigmas, - - *Chrysanthemum*
 C. *leucanthemum* (*Leucanthemum vulgare*), *Ox-eye Daisy*. Leaves spatulate to linear, serrate or pinnatifid; heads terminal, solitary, large, long-peduncled, with white or pink ligules and light yellow disk; pappus absent. Fields. Spring to Fall.
 Many cultivated species in various colors and sizes.
17. Pappus bristly in 1 series, sometimes with a row of shorter bristles outside;—caulescent, almost scapose herbs, with alternate, entire or toothed leaves; involucre broad with narrow bracts in 1-2 rows, reflexed when mature, - - *Erigeron*, *Fleabane*
 E. *vernus* (*nudicaulis*). Almost smooth; stems scapose, solitary or tufted, corymbosely branched above; basal leaves spatulate to oval, petioled; stem-leaves scaly; rays 20-30, white or pink, disk yellow. In sand. Spring and Summer.
 E. *pulchellus* (*helldifolius*). Villous; stem solitary; basal leaves spatulate to elliptic; stem-leaves oblanceolate; heads solitary or few, showy; rays numerous, violet or bluish-purple; disk yellow. Open woods. Spring.
 E. *ramosus* (*strigosus*). Rough-pubescent; stem branching above; leaves spatulate to linear; heads numerous with white or pale-pink rays and yellow disk. Dry soil. Spring to Fall.
18. Ray-flowers yellow, - - - - - 19
 18. Ray-flowers not yellow, - - - - - 21
 19. Pappus single, or in 2 nearly equal series of capillary bristles, - - - 20
 19. Pappus double, the inner series of rough, hair-like bristles, the outer of small scales or bristles;—pubescent herbs with alternate leaves and showy heads in corymba; bracts of involucre in several rows, - - - *Chrysopsis*, *Golden Aster*
 C. *graminifolia*. Foliage silvery-silky; leaves linear, not clasping, the lower conspicuously longer than the upper. Sandy pine-land. Summer and Fall.
 C. *oligantha*. Foliage silvery-silky below, glandular above; leaves linear, those on the stem few and clasping; heads long-peduncled. Low pine-land. Spring.

- C. *scabrella*. Foliage rough glandular; leaves numerous, linear, sessile; bracts of involucre rigid, firm-pointed. Dry pine-land. Fall and often through Winter.
- C. *trichophylla*. Foliage villous; leaves numerous, the lower spatulate, those of the stem oblong to linear; heads often numerous, Pine-land. Summer and Fall.
- C. *hyssopifolia*. Foliage glabrous; basal leaves in a dense rosette, those of the stem crowded, from spatulate to linear. Pine-land. Summer.
20. Annual or biennial herbs; ray-flowers 5-12, disk-flowers 7-20;—foliage rough-pubescent, leaves alternate, 1-veined; heads paniculate with an involucre of 2-3 rows; pappus single, - - Isopappus
- I. *divaricatus*. Stem hispid and glandular; leaves linear, ciliate; bracts linear, acuminate. Dry soil. Summer and Fall.
20. Perennial herbs, sometimes shrubby near the base; ray-flowers fewer than disk-flowers;—leaves alternate, simple, often toothed; heads small in panicles, racemes or thyrses; involucre of several rows; rays in one series. Late Summer and Fall.

Solidago, Goldenrod

- a. Heads in axillary short or raceme-like clusters, or in a terminal thyrs, always leafy-bracted; lower leaves spatulate, the upper lanceolate. Woods and thickets. - - S. *caesia*
- a. Heads in a terminal panicle or thyrs, inconspicuously bracted, - - b
- b. Inflorescence pyramidal;—stem rigid; lower leaves spatulate or cuneate, the upper oblong to ovate; heads large, 20-25 flowered, Dry or stony soil. - - - - S. *petiolaris*
- b. Inflorescence one-sided, - - - - - c
- c. Leaves pinnately veined, - - - - - d
- c. Leaves 3-ribbed - - - - - f
- d. Salt-marsh herbs with fleshy-leathery leaves, Leaves narrowed into petiole-like bases; heads small, rays 5, S. *angustifolia*
- Leaves narrowed into long petiole-like bases; rays 7-10, S. *sempervirens*
- d. Land-plants with common leaves, - - - - e
- e. Stem not angled, pubescent; leaves smooth except the ciliate margins. Dry soil. Leaves entire, anise-scented; heads 5-7 flowered, rays 3, - S. *odora*
- Leaves toothed; heads 3-5 flowered, rays none. - S. *brachyphylla*
- e. Stem not angled, glabrous; leaves few, thick, smooth, more or less toothed; heads 9-12 flowered, numerous, rays often wanting. Dry pine-barrens. - - - - S. *gracillima*
- f. Stem and branches of the panicle pubescent, - - - - g
- f. Stem glabrous; branches of the panicle pubescent, - - S. *serotina*
- g. Stem leaves relatively long, acuminate, more or less serrate. Leaves linear; heads rather large. Damp soil, - S. *leavenworthii*
- Leaves lanceolate; heads small. Dry or damp soil. - S. *canadensis*
- g. Stem leaves relatively short, obtuse or merely acute, serrate or entire;—panicle dense, recurved; head 10-12 flowered, rays 5-6. Old fields. - - - - S. *memoralis*
20. Shrubby plants;—leaves alternate, narrow, with rounded or angular depressions; heads numerous, 4-7 flowered, rays 1-3; bracts in few rows; pappus brownish, - - - - *Chrysoma*

- C. (Solidago). pauciflosculosa. Viscid. Low sandy soil. Fall.
21. Ray-flowers few, about 5;—herbs with alternate, entire or toothed leaves; heads 12-15 flowered, corymbose; bracts leathery, in few rows; disk yellowish or purplish, rays white or pink; pappus of numerous scabrous bristles. *Sericocarpus*
- S. Mfoliatus (tortifolius). Stem grayish-pubescent, leaves obovate, short, sessile; pappus white. Sandy pine barrens. Summer and Fall.
21. Ray-flowers numerous;—herbs with alternate leaves; the radiate heads collected in corymbs, racemes or panicles, surrounded by an involucre, of imbricated bracts in several rows; receptacle flat or convex, sometimes fimbriate; disk-flowers yellow, changing to red, brown or purple; rays white, pink, purple, blue or violet; pappus in 1, rarely 2, series, bristly. Late Summer and Fall. *Aster*.
- a. Basal and lower cauline leaves relatively broad, petioled; upper cauline leaves similar but shorter-petioled or sessile. *b*
- a. Basal and lower cauline leaves relatively narrow, with the base contracted into a petiole; upper cauline leaves sessile or clasping. *c*
- a. Cauline leaves merely sessile. *d*
- b. Stem stiff, rough-pubescent; basal leaves small, orbicular to ovate; lower cauline leaves ovate with cordate bases and some of the petioles clasping; middle cauline leaves, lanceolate and similar to the lower; upper cauline leaves sessile or somewhat clasping; ray-flowers 8-15, pale violet. Dry soil. *A. undulatus*
- b. Stem rigid, rough with small glands between strigose hairs; leaves cordate-lanceolate to narrowly linear; heads small, long-peduncled, racemose, rays 12-15, reddish purple. *A. Mohrii*
- c. Stem trailing, usually pubescent; leaves short, entire, elliptic to lanceolate, broadly clasping; heads solitary or clustered at the ends of the leafy branches; bracts narrow, with spreading or recurved dark-green tips; rays pale purple or pink. Swamps. *A. Carolinianus*
- c. Stem stout, smooth or pubescent in lines; leaves numerous, sharply serrate, oblong to oblong-lanceolate, the upper ones a little clasping; heads crowded at the ends of the branches; bracts very narrow, often recurved with linear tips; rays purplish. Swamps. *A. Elliotti*
- d. Leaves not fleshy. *e*
- d. Leaves fleshy;—scattered, linear, those of the branches scale-like; heads few, terminal; bracts green on the back or at the tips, imbricated in 5 rows; pappus tawny; rays purple to nearly white. Salt marshes. *A. tenuifolius*
- e. Basal and lower cauline leaves not grass-like. *f*
- e. Basal and lower cauline leaves grass-like. *i*
- f. Rays purple, lilac or violet. *g*
- f. Rays pale-purple or white. *h*
- g. Leaves silky or canescent; heads in a raceme;—leaves oblong to linear, sessile; bracts linear, appressed, and like the leaves grayish-white, in 4-5 rows, with green tips; pappus tawny; rays 10-15, lilac. Sandy soil. *A. concolor*
- g. Leaves rough, adnate to the stem and branches; heads small, few, scattered, terminating the scaly branches;—basal leaves

- obovate, few; cauline leaves small, oblong to lanceolate, numerous; bracts linear with dark-green tips; rays violet. Dry pine land. - - - *A. adnatus*
- g. Leaves rough, more or less reflexed; heads small, few, scattered, terminating the scaly branches;—basal leaves spatulate, the cauline rigid, oblong to ovate, ciliate; bracts with dark-green tips; rays 14-24. Dry pine land. - - - *A. squarrosus*
- h. Heads numerous, terminating slender branchlets;—stem smooth, paniculately branched; basal leaves spatulate, stem-leaves linear or linear-lanceolate, often reflexed; those of the branches scale-like; bracts in about 4 rows with green, tapering tips; rays 15-30, white, rarely pale pink. Sandy or low soil. - - - *A. dumosus*
- i. Heads not numerous, in racemes or spikes;—stem and slender branches more or less rough-pubescent; leaves linear; sessile, rigid; bracts smooth, linear, acuminate; rays few, short, purplish white. Along the coast - - - *A. racemosus*
1. Leaves smooth, rather rigid, entire, clasping, often fringed near the base;—stem simple or somewhat branched above, often purplish; heads 3-8, racemed or paniced; bracts in about 5 rows; rays 20-30, deep violet or blue. Low pine barrens. - - - *A. paludosus*
1. Leaves at the base spreading, those of the stem one-third the length, sessile, bract-like; all the leaves below the middle with spiny teeth;—stem rigid, not branched; heads large, solitary, or 3-4 in a loose raceme; bracts in many rows; rays white or light-violet or blue. Low pine-land. - - - *A. eryngifolius*
22. Shrubs;—leaves fleshy, simple, opposite, slightly connate, heads solitary, peduncled; bracts in 2-3 rows; receptacle convex; stigmas of the disk-flowers hispid; pappus a toothed crown; rays few, yellow. Saline marshes. - - - *Borreria, Sea Ox-eye*
B. frutescens. Leaves linear-spatulate to obovate, cuspidate. Late Summer.
23. Herbs, - - - - - 23
23. Ray-flowers persistent on the achenes, - - - - - 24
23. Ray-flowers deciduous from the achenes, - - - - - 25
24. Leaves entire or sparingly toothed, sessile; bracts of the involucre in 3-4 rows, appressed; ray-flowers red, purple, yellow or variegated; achenes of the rays 3-angled, those of the disk flattened;—leaves opposite, 3-ribbed; receptacle conical; heads solitary on long peduncles; pappus of 1-several awns or teeth, or absent. Cultivated. - - - *Crassia (Zinnia)*
24. Leaves toothed, petioled; bracts of the involucre in 2-3 rows, narrow; ray-flowers yellow; achenes 3-4 angled;—leaves opposite; receptacle convex or conical; heads solitary or in corymbs; pappus a low, 2-4 toothed crown, or absent. - - - *Helopsis*
H. helianthoides (laevis). Stem smooth with ovate to lanceolate, serrate leaves. Dry open woods. Summer.
25. Receptacle flat to convex - - - - - 26
25. Receptacle convex to elongated;—leaves opposite, petioled; heads peduncled; bracts in about 2 rows, narrow; pappus of 1-several awns, - - - *Spilanthes*
S. repens. Stems decumbent, slightly pubescent, leaves ovate to lanceo-

- late, serrate, narrowed into a petiole; rays yellow. Riverbanks. Spring to Fall.
25. Involucre campanulate or hemispherical, its bracts short, erect or appressed; achenes of the rays 3-angled, those of the disk flat, winged or ciliate; perennial herbs or shrubby;—leaves more or less decurrent; pappus of 1-3 awns, sometimes accompanied by scales, - - - *Verbesina, Crownbeard*
V. virginica. Stem winged; leaves alternate, lanceolate to ovate, serrate; heads in corymb; ray-flowers white. Dry ground. Summer.
26. Involucre flat, its bracts elongated, spreading; achenes flat, winged; annual herbs;—leaves pubescent; pappus of short awns, *Ximenesia*
X. (Verbesina) encelloides. Stems branching; leaves mostly alternate, deltoid or lanceolate, serrate or incised; petioles winged; heads solitary or few; ray-flowers bright yellow, achenes of the disk winged, 2-awned; those of the rays wingless, 3-toothed. Low ground. Summer.
27. Disk-flowers bilabiate;—stemless perennial herbs with basal leaves, smooth above and white-tomentose beneath; the simple scape bearing the solitary head; receptacle naked; bracts of the involucre narrow in few rows; pappus of numerous soft bristly hairs, - - - *Thyrsoanthema (Chaptalia)*
T. semiflosculare (C. tomentosa). Leaves oblong to oblanceolate; heads nodding; disk-flowers white or purplish, ray-flowers usually purple. Low pine barrens. Spring and summer.
27. Disk-flowers 5-lobed, - - - - - 28
28. Heads conspicuous, achenes flat, - - - - - 29
28. Heads inconspicuous; achenes short and thick, not flattened;—coarse pubescent herbs with opposite, often leathery leaves; heads in the axils of leaf-like bracts; involucre double, 5 outer bracts herbaceous and several small inner bracts which form a bur around the achene; receptacle concave or convex; ray-flowers few, yellowish; pappus absent. - - - *Acanthospermum*
A. australe (xanthioides). Prostrate; leaves ovate to rhombic, serrate-dentate, on short peduncles; bracts prickly. Dry soil. Spring to Fall.
29. Leaves opposite; heads few, peduncled; pappus a cup-shaped crown;—low, pubescent herbs with broad, petioled leaves; involucre double, consisting of 5 leafy outer, and as many firm inner bracts as there are rays; disk-flowers each with a bractlet; achenes flat, each adnate to its bract. - - - *Chrysogonum*
C. virginianum. Stem hirsute, branching; leaves oblong to oval, serrate or crenate; heads few or single; with about 5 light-yellow rays. Sandy soil. Spring and Summer.
29. Leaves alternate or basal; heads solitary or corymbose; pappus obsolete or of 2 caducous awns;—herbs with the leaves toothed or pinnatifid; bracts of the involucre in about 3 rows, and receptacle chaffy; ray-flowers 5-12, yellow. - - - *Berlandiera*
B. pumila (tomentosa). Simple or sparingly branched, grayish-tomentose; leaves oblong to oval, crenate; achenes ciliate. Sandy soil. Summer and Fall.
B. humilis. Acaulescent, tomentose; leaves oblong to ovate, crenate or pinnatifid near the base; scapes simple or corymbose above; achenes woolly. Pine-land. Spring to Fall.
B. subcaulis. Tufted, hispidulous; leaves chiefly basal, sinuate or lyrate-

pinnatifid, oblong or oblanceolate; achenes somewhat ciliate. Sand. Spring to Fall.

30. Receptacle chaffy near the top;—herbs with alternate, pinnatifid or dissected leaves, and long-peduncled heads; bracts of the involucre in several rows, with scarious margins; receptacle convex or elongated; ray-flowers mostly neutral, white; disk-flowers perfect and fertile, yellow; pappus absent or a mere border.

Anthemis (Maruta)

- A. (M.) *Cotula*, *May-weed*, *Dog's Camomile*. Strongly-scented annual; leaves thrice pinnately dissected, segments linear. Waste places. Spring to Fall.

30. Receptacle fimbriate to naked;—herbs with alternate or basal leaves, entire, toothed or pinnatifid; heads long-peduncled; bracts of involucre in 2-3 rows, broad, at least the outer row spreading; receptacle convex; rays mostly neutral, yellow or purple or both; disk-flowers perfect and fertile; pappus of 6-12 awns which are membranous at the base. Spring to Fall. - *Gaillardia*

- G. *lanceolata*. Brownish-pubescent, loosely branched; leaves spatulate to linear, mostly sessile; rays yellow, disk purple; receptacle almost naked. Sandy pine-land.

- G. *pulchella* var. *picta*, with conspicuous ligules; receptacle fimbriate. Cultivated.

30. Receptacle chaffy throughout, - - - - 31

31. Involucre simple or imbricated, - - - - 32

31. Involucre double; pappus 2 or 4 awned, - - - - 34

32. Pappus a cup-shaped border, or 2-4 short teeth, or absent;—herbs with alternate, toothed or pinnatifid leaves; heads showy, terminating the stem or branches; involucre imbricated, bracts in 2-more rows; disk-flowers perfect and fertile. - *Rudbeckia*, *Cone-flower*

- R. *laciniata*. Stems smooth, usually branched; leaves from pinnately 3-7 foliate below, to toothed or entire at the top of the stem, petioled or sessile; rays yellow, drooping; disk greenish-yellow; pappus a 4-toothed or entire crown. Swampy ground. Summer and Fall.

- R. *heterophylla*. Stems pubescent, sparingly branched; lower leaves pinnately 3-5 parted, to upper leaves ovate, coarsely toothed, all petioled; rays yellow, drooping at last; disk greenish, yellow; pappus a cup-shaped border. Swamps. Summer.

- R. *nitida*. Stems smooth, simple or branched; leaves ovate-spatulate to lanceolate-oblong, all petioled; rays yellow, drooping; disk brown; pappus conspicuous. Low ground. Spring to Fall.

- R. *hirta*. Stems hirsute, usually bracted; leaves elliptic to oblong, with winged petioles, or the upper leaves sessile; rays yellow or orange, disk purplish brown; pappus absent, Dry soil. Summer and Fall.

32. Pappus of 2-6 awns or scales, mostly unequal, - - - - 33

33. Awns or scales 2, early deciduous;—herbs with alternate or opposite, simple leaves, and conspicuous heads; bracts in several rows; rays yellow; disk brownish or purple, florets perfect and fertile. Summer and Fall. - - - *Helianthus*, *Sunflower*

- H. *angustifolius*. Scabrous perennial, 6-18 dm., branched; leaves few, alternate, linear, sessile; bracts linear; rays 12-18. Moist soil.

- H. *strorubens*. Hirsute or hispid perennial; 6-18 dm., branched above;

- leaves mainly below, opposite, ovate to lanceolate, with winged petioles; bracts oblong, leathery; rays about 12. Open woods.
- H. heterophyllus.** Hirsute or hispid perennial, 4-12 dm., mostly simple; leaves mostly opposite, the lower oblong to spatulate, the upper linear; bracts lanceolate; rays 15-20. Low pine-land.
- H. divaricatus.** Perennial, 8-12 dm., smooth or glaucous, simple or with slender branches above; leaves opposite, lanceolate or ovate-lanceolate, entire or serrate, mostly sessile; bracts lanceolate; rays 7-15. Open woods.
- H. annuus.** Pubescent annual, 1-2-3 m. tall, branched above; leaves mainly alternate, broadly ovate, toothed; bracts ovate to oblong. Cultivated and escaped in sandy soil.
- 33. Awns or scales 2, with smaller ones between;—**perennial herbs with alternate or opposite leaves, and showy peduncled heads; bracts of involucre in 2-3 rows, the outer often longer than the inner; rays yellow; disk yellow or purplish-brown; florets perfect and fertile. Summer and Fall. *Helianthella*
- H. grandiflora.** Stem simple or sparingly branched, 6-12 dm.; leaves linear; bracts linear to lanceolate; rays 16-20. Pine-land.
- 34. Awns hispid downward,** 35
- 34. Awns hispid upward;—**herbs with entire or pinnately divided leaves, and heads at the end of the peduncle-like branches; rays commonly 8; disk-flowers perfect and fertile; pappus of 2 awns or scales. *Coreopsis, Tickseed*
- C. lanceolata.** Glabrous, branched; leaves chiefly below, opposite, petioled, spatulate to linear-ob lanceolate; rays 3-lobed at the apex, the middle lobe notched, yellow; disk yellow; pappus a pair of small fimbriate scales. Dry soil. Spring and Summer.
- C. tripteris.** Smooth, branched; leaves opposite, petioled, 3-parted, the middle segment often again parted; upper and lower leaves often entire; rays and disk yellow; pappus often a short fimbriate border. Margin of fields. Summer and Fall.
- C. angustifolia.** Smooth, 4-angled, branched above; leaves opposite, the lower petioled, oblanceolate, the upper sessile, linear, or mere scales; heads small, corymbose; rays 3-toothed, yellow; disk dark purple; pappus a pair of awns. Wet pine-land. Summer and Fall.
- C. nudata.** Smooth, slender, branched above; leaves alternate, rush-like, the upper minute; rays pink to purple, 3-toothed; disk yellow; pappus a pair of minute awns. Wet pine-land. Spring and Summer.
- C. Drummondii, Brown-eyed Susie.** Pubescent; leaves pinnately divided; rays yellow with purple base, unequally 5-toothed; disk dark purple. Cultivated and escaped. Summer.
- 35. Achenes beakless;—**herbs with chiefly opposite leaves and numerous heads; disk-flowers perfect and fertile; rays yellow or white; pappus of 2-4 rigid barbed awns or teeth, or absent. *Bidens, Beggar-ticks, Bur-Marigold*
- B. bipinnata.** Stem tall, slender, 4-angled, branched; leaves bipinnate; heads small; rays 2-3, yellowish white; achenes 3-4 awned. Cultivated ground. Summer and Fall.
- B. leucantha.** Stem 4-angled branched; leaves pinnately 3-5 divided, segments crenate-serrate; rays about 5, cuneate, 2-3 lobed, white; achenes 2-4 awned. Roadside. Through the Winter.

- B. *frondosa*. Stem bushy-branched; leaves long-petioled, pinnately 3-5 divided, segments serrate; rays, when present, golden yellow; disk orange; achenes black, 2-awned with barbs erect or reflexed. Low ground. Summer and Fall.
- B. *laevis* (*chrysanthemoides*). Stem branched, slender, ascending; leaves elliptic-lanceolate, obscurely serrate, often connate; heads showy, erect later nodding; rays large, golden yellow, disk orange, achenes 2-4 awned. Borders of lakes and ponds. Fall.
35. Achenes beaked;—tall, smooth annuals with the leaves opposite, entire, lobed or 2-3 pinnately divided; heads peduncled, with yellow disk and crimson, pink, white or yellow rays. Cultivated. - *Cosmos*
- The so-called *Black Cosmos*, *C. diversifolius*, has red disk and dark red or purple rays.

156. Cichoriaceae, *Chicory* Family.

Scapose or caulescent herbs with alternate or basal, simple leaves and ligulate, perfect flowers in heads, the latter peduncled, rarely sessile; involucre of 1-several rows of bracts; pappus of scales, hairs or bristles; anthers connate around the style; ovary 1 celled, with solitary ovule; stigmas 2; fruit an achene.

1. Pappus scaly or bristly, or both. 2
 1. Pappus of hair-like bristles. 3
 2. Flowers yellow;—leaves chiefly basal, pale green or glaucous; heads terminating the peduncle-like stems; bracts in 1-2 rows, equal; receptacle flat, naked; pappus double, the outer series of thin scales, the inner of slender bristles.
- Adeopogon (Krigia), *Dwarf Dandelion*
- A. *Carolinianus* (K. *Virginica*). Leaves spatulate to linear in outline, deeply pinnatifid; scapes erect or ascending; heads yellow. Dry soil. Early Spring to Summer.
 - A. *Virginicus* (K. *amplexicaulis*). Leaves spatulate to oval, often narrowed into winged petioles; stem-leaves small, sessile or clasping; heads reddish orange. Around ponds. Spring to Fall.
 - A. (K.) *Dandelion*, *Cynthia*. Stems short or wanting; roots bearing small tubers; leaves spatulate to linear, undulate or pinnatifid; scapes long, erect or ascending, often glandular-hirsute; heads large, yellow. Damp soil. Spring and Summer.
 2. Flowers blue;—involucre double, the outer of 5 leafy scales, the inner of about 8 linear ones; receptacle chaffy to naked,
- Cichorium, *Chicory*
- C. *Endivia*, *Endive*. Basal leaves sinuate or pinnatifid, cauline leaves auricled; heads 3-5, axillary. Cultivated.

3. Achenes smooth or ribbed. 4
 3. Achenes tuberculate or spinulose;—leaves basal; heads terminating hollow peduncles; involucre double, consisting of one inner row of erect, nearly equal bracts, and several rows of shorter spreading or reflected bracts outside; receptacle naked; achenes beaked.
- Taraxacum, *Dandelion*

- T. Taraxacum (officinale).** Leaves spreading, spatulate to oblong, dentate to runcinate-pinnatifid; flowers yellow. Waste places.
- | | | | | | |
|------------------------------------|---|---|---|---|---|
| 4. Achenes cylindric or prismatic, | - | - | - | - | 5 |
| 4. Achenes flat, | - | - | - | - | 8 |
| 5. Flowers yellow, | - | - | - | - | 6 |
| 5. Flowers not yellow, | - | - | - | - | 7 |
6. Achenes beakless;—herbs with alternate, entire or toothed leaves, sometimes all basal; heads in corymbs or panicles, or solitary; inner row of involucre consisting of 1-3 series of narrow bracts surrounded by outer bracts, abruptly or gradually smaller; receptacle naked or nearly so, flat; pappus tawny or white. Sandy soil. Summer and Fall. - *Hieracium, Hawk-Weed*
- H. Gronovii.** More or less hirsute, tall; stems branched above, leafy below; leaves spatulate to oblong, narrowed into winged petioles below and oval to obovate, small and sessile, higher up.
- H. Floridanum.** Stems more or less hairy, widely branched above, and copiously leafy; leaves pubescent, oval-oblong below, ovate above, sessile.
6. Achenes beaked;—heads long-peduncled; involucre double; the inner row of several narrow bracts, the outer of several series of smaller bracts; receptacle naked, flat; pappus brownish, of copious hairs surrounded by a ring of shorter hairs.
- Stillas (Pyrrhopappus), False Dandelion**
- S. Caroliniana (P. Carolinianus.)** Leaves pinnatifid to denticulate; heads at the end of the smooth stem or peduncle-like branches. Dry soil. Spring to Fall.
7. Flowers erect;—herbs with smooth, rigid, filiform leaves and solitary showy heads; involucre of 5-8 bracts with several very small bracts around; receptacle flat, naked; pappus of copious white hairs. - *Lygodesmia*
- L. aphylla.** Stems erect, simple or forking above; leaves reduced to scales, or a few linear leaves at the base; flowers rose-colored to white; achenes nearly as long as the pappus. Dry pine-land. Spring to Fall.
7. Flowers nodding;—herbs with alternate leaves, and small heads in clusters; involucre of 1-2 series of bracts surrounded by few very small bracts; receptacle flat, naked; pappus of numerous straw-colored or brownish, bristly hairs. - *Nabalus, Rattlesnake-root*
- N. serpentarius (Prenanthes serpentaria).** Smooth stem, branching above, often widely; leaves pinnately or hastately 3-7 lobed, narrowed into winged petioles, the upper leaves sessile; inflorescence a panicle, broadened upward; ligules purplish to cream-colored. Dry sterile soil. Summer and Fall.
- N. virgatus (Prenanthes virgata).** Stem wand-like; lower leaves sinuate-pinnatifid or pinnately parted, on margined petioles; upper leaves gradually smaller, entire, sessile; inflorescence raceme-like; ligules pink to white. Pine-land. Fall.
8. Achenes beakless;—succulent herbs with alternate, mainly clasping leaves, the edges and midvein often prickly; heads in corymbose panicles, yellow; bracts of the involucre in several rows, unequal, herbaceous or membranous; receptacle flat, naked; pappus of numerous soft white hairs. Waste places. Spring to Fall. - *Sonchus, Sow Thistle*

8. *oleraceus*. Lower leaves lyrate-pinnatifid, petioled; upper leaves shorter, runcinate or lyrate-pinnatifid; clasping by acute bases.
8. *asper*. Leaves spatulate to oblong, the upper clasping by rounded bases.
8. Achenes beaked; tall herbs, often paniculately branched above, with rather small but often numerous heads of white, yellow or blue flowers; inner involucre of 1-2 series of nearly equal bracts, surrounded by several series of smaller bracts; receptacle flat, naked, *Lactuca, Lettuce*
- L. graminifolia*. Leaves linear or linear-lanceolate, all entire or the lowest pinnatifid; beak of achene shorter than the body; flowers purple or blue, rarely yellowish or white. Open ground. Spring to Fall.
- L. Canadensis*. Basal leaves petioled, spatulate or oblong, dentate or pinnatifid; stem-leaves sinuate-pinnatifid; beak of achene fully as long as the body; flowers yellow. Open ground. Summer and Fall.
- L. sativa, Garden Lettuce*. Flowers white; cultivated in several varieties.



ADDITIONS.

Page 20, after line 4 from the top:

2. Flowers moncecious, sterile aments terminal, sessile or nearly so; fertile aments terminal, globose; cones woody, globose; carpelary scales peltate; seeds slightly winged or merely angled.

Chamaecyparis (*Cupressus*)

- C. thyoides* (*sphaeroides*), *White Cedar*, *Cypress*. Middle-sized, strongly scented tree; the scale-like leaves 4-ranked, imbricated; cones small: scales with points on the back, at length widely spreading. Wet sandy places towards the coast.

Page 49, after line 2 from the top:

Cultivated *Magnolias* with the flowers appearing before the leaves in Spring are:

M. Yulan (*conspicua*), a tree with large, white, sweet-scented flowers: sepals and petals almost alike.

M. obovata, a large shrub with large, scentless flowers, white inside and purplish to deep crimson outside; sepals small, greenish yellow.

M. Soulangeana, a hybrid of the preceding two, with flowers often fragrant and sepals usually colored; corolla white inside, pink outside.

Closely allied to the genus *Magnolia* is:

Mitchella (*Magnolia*) *fascata*, *Banana Shrub*, an evergreen with small, banana-scented, brownish-yellow flowers; sepals and petals similar, 9-15 or more, in 3 or more series; stamens numerous; fruit a spike of leathery carpels; seeds as in *Magnolia*. Cultivated.

GLOSSARY.

It is for our purpose sufficiently accurate to count:

- 1 meter (m.) = 39.37 inches.
 - 1 foot = 3 decimeters (dm.)
 - 1 inch = 2.5 centimeters (cm.)
 - or = 25 millimeters (mm.)
-

Acaulescent: with little or no stem above ground.

Accrescent: growing after flowering.

Alveolate: pitted, honey-combed.

Amplexicaul: applied to leaves with the base-lobes clasping the stem.

Anther (see **Stamen**): its position in regard to the filament may be *innate*, erect on the top; *adnate*, attached to the side; *versatile*, attached by a point in the back to the top of the filament;—*introrse*, with the line of dehiscence toward the pistil; *extrorse*, with the line of dehiscence toward the corolla.

Apex: free termination of a leaf or its segments. It may be *acuminate*, long and tapering; *cuspidate*, abruptly contracted to a sharp point; *mucronate*, tipped with a spiny point; *acute*, pointed; *obtus*e, rounded; *truncate*, cut square off; *retuse*, slightly depressed; *emarginate*, with a small notch; *obcordate*, with a deep indentation.

Aril: appendage covering the seed partially or totally.

Barbed: with rigid points, usually reflexed.

Bract, Bractlet: reduced or modified leaf subtending a flower or growing upon the pedicel.

Bulb: a subterranean bud, with concentric layers enclosing all within it, *tunicated*;—or with fleshy scales arranged spirally, *scaly*.

Bulblet: small bulb, usually above ground on the stem.

Caducous: dropping off very early, especially used for petals.

Calyx (see **Flower** and **Perianth**): outer whorl of the floral envelope. May have its sepals distinct, *polysepalous*,—or more or less united, *mono-* or *synsepalous*.

Capitate: growing in heads or in dense clusters.

Carpel: a simple pistil or one of the parts of a compound pistil.

Carnacle: a small protuberance near the hilum of the seed.

Caudex: trunk of palms and tree-ferns; also the perennial rootstock of an annual plant.

Cauliscent: having an aerial stem.

Cauline: belonging to the stem, chiefly used of leaves.

Chaffy: consisting of dry or membranous scales or bracts.

Ciliate: fringed with hairs.

Cinereous: ashy gray.

Circinate or **Circinnate:** coiled inward from the top.

Cleistogamous, Cleistogae: used for flowers which do not open, as a means of self-pollination.

Coma: a tuft of hairs on a seed.

Connate: said of two opposite sessile leaves with the bases united.

Conalvent: coming together, converging.

Coriaceous: leathery.

Corm: a solid, bulb-like, underground expansion of a stem, with a leaf-bud at the summit or at the side.

Corolla (see *Flower* and *Perianth*): inner whorl of the floral envelope. May have its petals distinct, *polypetalous*;—or more or less united, *mono-* or *gamo-* or *sympetalous*; in the latter case the union may be restricted to the *claws*, forming a tube, or extended to the *laminae* of the petals, forming the border or limb.

Covering: the surface of a leaf, stem, etc., may be:

glabrate, nearly smooth, or becoming smooth with age;

glabrous, without covering, smooth;

muricate, rough, with short, hard points;

rugose, wrinkled;

scabrous, rough, with minute hard points;

scurfy, with brain-like scales;

sulcate, grooved;

verrucose, covered with warty elevations;

Or the surface may be covered with hairs, prickles or spines, and is called:

aculeate, prickly;—*canescent*, hoary with a gray pubescence;—*floccose*,

hairs in soft fleecy tufts;—*hirsute*, hairs long, rather stiff, scattered;—

hispid, hairs short, stiff, scattered;—*lanuginose*, woolly;—*pilose*, hairs

short, soft, scattered;—*puberulent*, minutely hairy;—*pubescent*, hairs

short, soft, dense;—*sericeous*, hairs silky, dense;—*setose*, or *setaceous*,

bristly;—*spinose*, beset with spines;—*strigose*, *strigillose*, hairs rigid,

dense, appressed;—*tomentose*, like felt;—*villous*, hairs soft, long, dense.

Ecucullate: hooded or rolled up into hood-shape.

Deciduous: not evergreen, dropping off.

Dehiscence: opening of anthers or fruit by valves (*valvular*), by pores (*porous*), by a lid at the top (*circumscissile* or *opercular*), etc.—Valvular dehiscence of fruit may be:

sutural, along the sutures of a beelled pericarp;

loculicidal, each carpel opens at its dorsal suture, the partitions remaining attached to the middle of the valves;

septicidal, the carpels separate along the partitions, and each carpel may dehisce suturally or remain indehiscent;

septifragal, the carpels break away from the partitions, the latter remaining united in the axis.

Dichogamous: the condition of a perfect flower in which the stamens and pistils are not mature at the same time, so that self-fertilization is prevented.—The opposite condition is called *homogamous*.

Dichotomous: forked.

Didymous: double, occurring in pairs.

Dissepiment: partition; the separating membrane (double) in a compound ovary or in fruit.—It is called *false*, when the partition is single.

Distichous: arranged in two rows; *two-ranked*.

Exstipulate: without stipules.

Falcate: in the shape of a sickle or scythe.

Ferruginous: rust-colored.

Fimbriate: fringed; the margin bordered with slender processes.

Flower: consists of four whorls of leaves, viz, *calyx* (*sepals*), *corolla* (*petals*) *androecium* (*stamens*), and *gynoecium* (*pistils*); one or more of the whorls may be absent.

Flowers are said to be:

- complete*: the whorls all present, each of 1-more series or rows;
- diœcious*: flowers either pistillate or staminate, borne on different plants;
- distinct* (opposite of *coherent*, *connate*): parts of the same whorl not united;
- epigynous*: sepals, petals and stamens seem to arise from the upper part of the ovary;
- fertile*: producing fruit; or if said of stamens, possessing pollen; often used as synonymous with *pistillate*;
- free* (opposite of *adherent*, *adnate*): parts of two adjacent whorls not united;
- hypogynous*: sepals, petals and stamens inserted below the ovary;
- monœcious*: flowers either pistillate or staminate, borne on the same plant;
- neutral*: both stamens and pistils absent;
- perfect*: both stamens and pistils present in the same flower;
- perigynous*: sepals, petals and stamens arise from the rim of an urn-like outgrowth of the receptacle which surrounds the pistil;
- pistillate*: stamens absent;
- polygamous*: some flowers on the plant are imperfect;
- regular*: having the parts of the same whorl similar and alike;
- staminate*: pistils absent;
- sterile*: not producing fruit; or is said of stamens, not possessing pollen or anthers; often used as synonymous with *staminate*; some flowers in the Composite (Carnivore) however are perfect, yet produce no fruit;
- symmetrical*: having the same number of organs in each whorl.

Frond: the leaf of a fern;—*pinnæ* are primary divisions of fronds, *pinnules* are secondary pinnæ.

Fruit: consists of a seed or seeds (ripened ovules),—and the *pericarp* (*carpels*, often with adhering parts of the former flower).

The principal fruits are:

a. *Indehiscent*.

- achene*, small dry pericarp free from the single seed;
- berry*, succulent pericarp with seeds loosely in the pulp;
- carvopis*, same as *grain*;
- drupe* or *stone-fruit*, three-coated one-seeded;
- etaerio*, numerous small drupes united to each other or to the receptacle (*aggregate fruit*);
- glans*, same as *nut*, sometimes with a persistent involucre called *cupule*;
- grain*, thin dry pericarp adherent to the single seed;
- hesperidium*, many-carpeled pericarp with the rind more or less easily separable from the pulpy mass within;
- key*, same as *samara*;
- nut*, hard dry pericarp, 1-more seeded;
- pepo*, fleshy pericarp with hardened rind and many seeds on parietal placentæ;
- pome*, pericarp consisting of the permanent calyx and the fleshy receptacle, seeds contained in several cartilaginous or bony cells;
- samara*, dry with winged appendages (*alate*);
- tryma*, a 2-coated drupe;
- utricle*, small, thin pericarp loosely upon the single seed.

b. *Dehiscent*.

capsule, dry and opening by as many or twice as many valves as there are carpels, or by pores;

follicle, a single 1-celled, many-seeded carpel opening by ventral suture;

legume, a single 1-celled carpel with many seeds in 1 row dehiscing into 2 valves;

loment, a jointed pod which separates transversely into 1-seeded segments;

pod, same as *legume* and *siliqua*;

pyxis, dry and many-seeded, opening by a lid;

regma, with dehiscent carpels separating elastically;

siliqua, 2-carpeled, 2-celled by false dissepiment, 2-valved with 2 parietal placentae;

silicle, a short *siliqua*;

Fruits involving many pericarps or a whole flower-cluster are:

cone or *strobilus* of the Gymnosperms and some Pteridophytes, a mass of imbricated scales;

cone or *syncarpium* of the Magnolia, closed pericarps on a lengthened torus;

sorosis, the whole flower-cluster becoming a mass of united pericarps (*multiple fruit*);

syconium, numerous achenes enclosed within the hollow fleshy receptacle.

Egagaeus: soon dropping off, or fading.

Fulvous: tawny or dull yellowish brown.

Gibbeus: swollen on one side.

Glaucous: with a bloom, or powdery.

Glumaceous: resembling glumes or bearing glumes.

Glumes: scale-like bracts of Grasses and Sedges.

Gynandrous: said of stamens when united with the style.

Habitat: place of growth of a wild plant, as *terrestrial*, *aquatic*, *epiphytic*, etc.

Hybrid: plant produced by crossing of two species.

Imbricate: overlapping like the shingles on a roof.

Indehiscent: said of a *pericarp* (or *fruit*) which does not open to liberate the seeds.

Indusium: a delicate flap arising from the epidermis of a *frond* and covering a *sorus* of a fern; the inrolled margin of a *frond* protecting the *sori* along-side, is called *false indusium*.

Inflorescence: a definite region of a plant set apart for the production of flowers;—the term is also used to indicate the groups in which the flowers are arranged on the plant. Two types are often mentioned, viz:

a. *Centripetal*, with the older flowers at the base or at the circumference of the group,

spike, with long rachis and sessile flowers;

spadix, with thick fleshy rachis and sessile or imbedded flowers;

ament or *catkin*, a slender, often drooping *spike* with unisexual flowers subtended by bracts;

raceme, erect or drooping rachis with flowers on pedicels from different points of the rachis;

corymb, same as *raceme*, but flat-topped or convex through the greater length of the lower pedicels;

umbel, much like the *corymb*, but the pedicels come from the same point of the rachis;

head, a reduced *umbel* with the flowers (*florets*) sessile upon the torus;

panicle, a compound *raceme* through branching of the pedicels;

thyrse, a dense mostly pyramidal *panicle*.

b. *Centrifugal*, with the older flowers at the top or at the centre of the group,

cyme, a flat or convex flower-cluster resembling a corymb; when flat-topped it is a *fastigiate cyme*; when loosely spreading it is a *cymose panicle*; when rounded it is a *globose cyme*; when resembling a coiled raceme through one-sided development, it is a *scorpioid cyme*;

fascicle, a crowded *cyme*, the flowers being nearly sessile;

glomerule, an axillary cluster;

verticillaster, a pair of glomerules in the axils of two opposite leaves, and meeting around the stem of the plant.

Involucre: bracts collected into a whorl or in spiral rows, subtending a flower or an inflorescence;—*involucel* is a small or a secondary involucre.

Laciniate: provided with an irregular and deeply cut fringe;

Latex: the milky juice of some plants.

Leaves: a leaf consists of the blade or lamina and the petiole; absence of the petiole makes the leaf *sessile*; absence of the blade with a flat compressed petiole makes the leaf a *phyllodium*.

Leaves are classified as follows:

A. simple leaves.

1. pinnately-veined:

a. lower veins longest: *linear*, *lanceolate*, *ovate*, *deltoid*;

b. middle veins longest: *oblong*, *elliptic*, *oval*, *orbicular*;

c. upper veins longest: *oblanccolate*, *obovate*, *cuneate*, *spatulate*;

d. lower veins curved: *cordate*, *auriculate*, *hastate*, *sagittate*;

e. tissue deficient between the veins to halfway the midvein: *pinnatifid*, *runcinate*, *lyrate*;

f. tissue deficient between the veins to near the midvein: *pinnately-parted*, *sinuate*;

2. palmately veined: *reniform*, *pellate*, *palmately-lobed*, *pedate*, *flabelliform* or *fan-shaped*;

3. parallel-veined: *linear*, *ensiform* or *sword-shaped*;—*lanceolate* and other forms of a. b. c. d. —contracted forms as *acrose* or *needle-shaped*, *subulate* or *awl-shaped*, *scaly*, etc.

4. forked-veined (*dichotomous*) in Pteridophytes.

B. compound leaves.

1. pinnately compound:

a. *one-foliate*, if only one leaflet is articulated to the petiole;

b. *two-foliate* or *binate*, with two leaflets on the petiole;

c. *tri-foliate* or *ternate*, with three leaflets on the petiole;

d. *even-pinnate* or *equally pinnate* or *abruptly pinnate*;

e. *odd-pinnate* or *unequally pinnate*;

f. *interruptedly pinnate*, if smaller pairs occur between the larger ones;

g. *bi-pinnate* or *twice pinnate*; *bi-ternate*;

h. *tri-pinnate* or *thrice pinnate*;

i. *decompound*, if the divisions go still further.

2. palmately compound: *ternate* or *3-foliate*, *quinate* or *5-foliate*, *septenate* or *7-foliate*.

The margin of a leaf may be *entire*, and it is said to have a *hem* when a vein runs along the whole margin;—or the margin may be *dentate* with teeth directed straight outward, *serrate* with teeth pointing forward, *crenate* with rounded teeth and sharp sinuses, *undulate* with both teeth and sinuses rounded;—when the margin is irregularly and sharply cut into, it is said to be *incised* or *cut*, *laciniate* or *torn* and *crese* or *jagged*;

—when the margin is wavy up and down it is called *repand*, or if there is very much tissue in the margin it is *crispate* or *crispid*;—projecting veins make the margin *spinous*.

Monalliform: like a string of beads.

Nerve: a slender unbranched vein; or the term is used instead of vein or rib.

Obsolete: much reduced or only rudimentary.

Ocrea: the two stipules when forming a tubular sheath around the stem or petiole.

Ovary (see Pistil).

Ovules: an ovule consists of the nucellus, with the *embryo-sac* or *megaspore* inside, and covered outside by the integument, a membrane which projects beyond the apex of the nucellus, leaving a passage called *foramen* or *micropyle*. In the seed the integument has become a hard covering, the *testa*, sealing up the structures within.—The ovule is supported on a stalk, the *funiculus*; the juncture of nucellus and funiculus is the *chalaza*. When the ovule stands straight upon the funiculus, the former is said to be *orthotropous*. When completely inverted it is *anatropous*, and when partly inverted it is *amphitropous*; in those two positions the funiculus becomes adherent to the testa making a longer or smaller seam, called the *raphe*. When the ovule is curved upon itself, it is *campylotropous*, and no raphe is formed.—The eye or scar left on the seed by the separation from the stalk is the *hilum*.

As to the position of the ovules in the ovary, they grow *erect*, *ascending*, *horizontal*, *pendulous* or *suspended*.

Pappus: the calyx of the florets of Compositae; it consists of a tuft of hairs,—or of tooth-like often barbed processes, or plumose bristles,—or a cup,—or a row of scales.

Pectinate: like the teeth of a comb.

Pedate: palmately parted, with the lateral segments cleft.

Peltate: shield-shaped, attached by its under surface.

Perfoliate: applied to an amplexicaul leaf when the base-lobes have grown together, so that the stem seems to pass through the blade.

Perianth: is the name for calyx and corolla collectively, or for the floral envelope if only one is present; if the perianth is absent, the flower is called *naked* or *achlamydeous*.—The principal forms of perianth are:

a. the parts *distinct*:

cruciferous, four long-clawed petals standing in opposite pairs;

caryophyllaceous, five long-clawed petals with spreading laminae;

rosaceous, five short-clawed petals, spreading;

lilaceous, six perianth-leaves, gradually spreading;

papilionaceous, page 61;

orchidaceous, page 88.

b. the parts more or less *united*;

cup-shaped, tube very short and border concave;

wheel-or star-shaped (rotate), tube very short and border flat;

urn-shaped (urceolate), oblong or globular, border contracted;

bell-shaped (campanulate), tube with rounded base, border spreading;

salver-form, tube narrow, abruptly passing into a spreading border;

funnel-form, tube narrow, gradually widening into a border;

tubular, tube narrow with a small border or rim;

strap-shaped (ligulate), tube as if split open lengthwise and flattened, border represented by teeth;

lip-shaped (labiate), tube widening and ending in a 2-lipped border; the corolla has a 2-lobed upper lip and 3-lobed lower lip; if the calyx is also

labiate the position of the lips is reversed.—A labiate corolla is *galeate* when the upper lip is concave (*helmeted*); it is *personate* when the juncture of tube and border (called the *throat*) is narrowed by a *palate*; it is *ringent* or *gaping* when the throat is wide open.

Pericarp: the wall of the fruit, sometimes the whole fruit.

Petals: parts of the Corolla.

Phyllodium: a leaf with flat, expanded petiole and no blade.

Pistil: a leafy structure of the Angiosperms, composed of:

the ovary, which consists of one or more *carpels* containing the *ovules* or *megasporangia*,

the style or styles, which may be absent, and

the stigma, the receptive surface for the pollen; it is called *sessile* when the style is absent. Styles and stigmas may be more or less united.

The ovary is *simple*,—or *compound*, i. e. containing one or more cells or cavities or compartments,—or *multiple*, when several simple ovaries are united. As to position, the ovary may be *superior* (*free* from the calyx), when perianth and stamens are inserted below,—or *inferior* (*adnate* to the calyx), when those other parts of the flower are inserted above the ovary.

Placents: the place within the ovary-cell where the ovules are attached.—Placentae may be *sutural* or *ventral*,—*axial* or *central* in some 1-celled compound ovaries,—or *parietal*, i. e. on the wall of the cavity.

Pollinia: masses of coherent pollen.

Pollen (see *Stamen*).

Praemorse: as if bitten off.

Punctate: marked with pits, translucent glands, or colored dots.

Putamen: the shell of a nut; also the stone of a fruit.

Rachis: the axis of an inflorescence; also the main-rib of a frond, or of a compound leaf.

Receptacle (see *Torus*).

Reticulate: netted.

Rhizome or Root-stock: a fleshy rooting stem, wholly or partially underground, often scaly or marked with scars of former leaves, and producing new shoots annually, chiefly at the apex.

Root: a holdfast, or an absorbent organ of the plant, or both.

According to their places, roots are: *soil-roots*, *water-roots*, *air-roots*, *adventitious roots*;

According to their functions, roots are: *feeding roots*, *clinging roots*, *prop-roots*.

According to their shape, roots are of two types:

a. *axial*, having a main body continuous with the stem at the *collum* or *neck*, viz:

ramous or *tap-root*, extensively branching;

fusiform or *spindle-shaped root*, tapering downward and for a short distance upward;

conical root, tapering downward, beginning at the collum;

napiiform or *turnip-shaped root*, often broader than long.

b. *diffuse*, dividing up into long, slender roots of nearly equal size, without a main root, viz:

fibrous roots, with thread-like divisions;

fasciculate roots, with some of the fibres fleshy;

nodulous roots, when the fibres have irregular thickenings;

- moniliform* or *necklace-roots*, with regular enlargements on the fibres.
- Rufous**: tawny, yellowish red.
- Scape**: a leafless flower-axis arising from the root.
- Scapose**: bearing a scape, or resembling a scape.
- Scarious**: dry, thin and colorless.
- Seed** (see *Ovules*).
- Sepals**: parts of the Calyx or Perianth.
- Sorus** (plural *Sori*): a fruit-dot, or cluster of sporangia in Ferns.
- Spathe**: a large bract, sometimes a pair of bracts, partially enclosing or covering a flower or an inflorescence.
- Sporangium**: a special cell producing or containing spores.
- Spore**: a cell set apart for reproduction.
- Squarrose**: with spreading processes.
- Stamen**: the leafy structure of the Angiosperms bearing the pollen (*microspores*).
A stamen consists of the filament and the anther, the latter composed of two *pollen-sacs* (*microsporangia*); the portion of the filament which connects the two parts of the anther is the *connectile* or *connective*.
—A stamen without anther is a *stamino-dium*.—Stamens are called:
monadelphous, when united by their filaments into 1 bundle;
diadelphous, when so united into 2 sets;
polyadelphous, when so united into several sets;
syngenesious, when united by their anthers;
didynamous, when 2 are long and 2 shorter in the same flower;
tetradynamous, when 4 are long and 2 shorter in the same flower.
- Stellate**: radiating from a point, *star-shaped*.
- Stem**: the axis or main body of a plant. It is called *caulis* in herbs, *culm* in grasses and sedges, *trunk* in trees, *caudex* in palms and tree-ferns, *stock* or *caudex* in the cactus, *vine* in climbing and trailing plants.—Scale-bearing, mostly subterranean stems are called *root-stock* or *rhizome*, or when short and as if bitten off, *praemorse root*; when possessing eyes or latent buds they are *tubers*; covered with thin scales on the very much condensed internodes, the almost globular stem is called a *corm*, and if the scales are fleshy we speak of a *bulb*, either tunicated or scaly.—As to the direction in which the leaf-bearing stems grow, they are distinguished by the names: *erect*;—*procumbent*, *prostrate* or *trailing*;—*decumbent* or *reclining*;—*assurgent* when growing obliquely from a longer or shorter prostrate base.
- Stipe**: the stalk of the ovary lifting it above the insertion of the other floral organs;—also the leafstalk of a fern-leaf.
- Stipules**: a pair of appendages at the base of the petiole:—the stipules of a leaflet are called *stipels*.
- Striate**: marked with fine longitudinal grooves.
- Style** (see *Pistil*).
- Succulent**: juicy, of loose cellular structure, fleshy.
- Suffrutescent**: slightly woody at the base.
- Sulcate**: furrowed.
- Terete**: cylindrical.
- Torulose**: swollen at intervals.
- Terus** or **Receptacle**: the axis of the flower at the summit of the flower-stalk; from it spring the parts of the flower, or it bears the florets of a head. That portion of the receptacle which is raised into the midst of the whorls is called the *disk* (*hypanthium*).

Tuber (see *Stem*).

Tubercle: a small knob-like outgrowth.

Tumid: swollen;—**Tumescence**: somewhat swollen.

Turbinate: shaped like a top.

Turgid: swollen, inflated.

Ungiculate: possessing a claw.

Veins: strands of vessels forming the frame-work of a leaf.

Venation: distribution of the veins.

Vernation: arrangement of the leaves in the bud.

Virgate: straight and slender, wand-like.



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 Yellow Sour-grass, 70
 Yucca, 29

 Zamia, 18
 Zannichelliaceae, 20
 Zanthoxylum, 71
 Zea, 22
 Zebrina, 26
 Zenobia, 100
 Zephyranthes, 31
 Zinnia, 139
 Zornia, 65
 Zygadenus, 27

ERRATA.

Page 12, line 16 from the top, read: **Pinguiculaceae.**

Page 30, the first of **b** should refer to **e.**

Page 67, line 18 from the top, read: **Centrosema.**

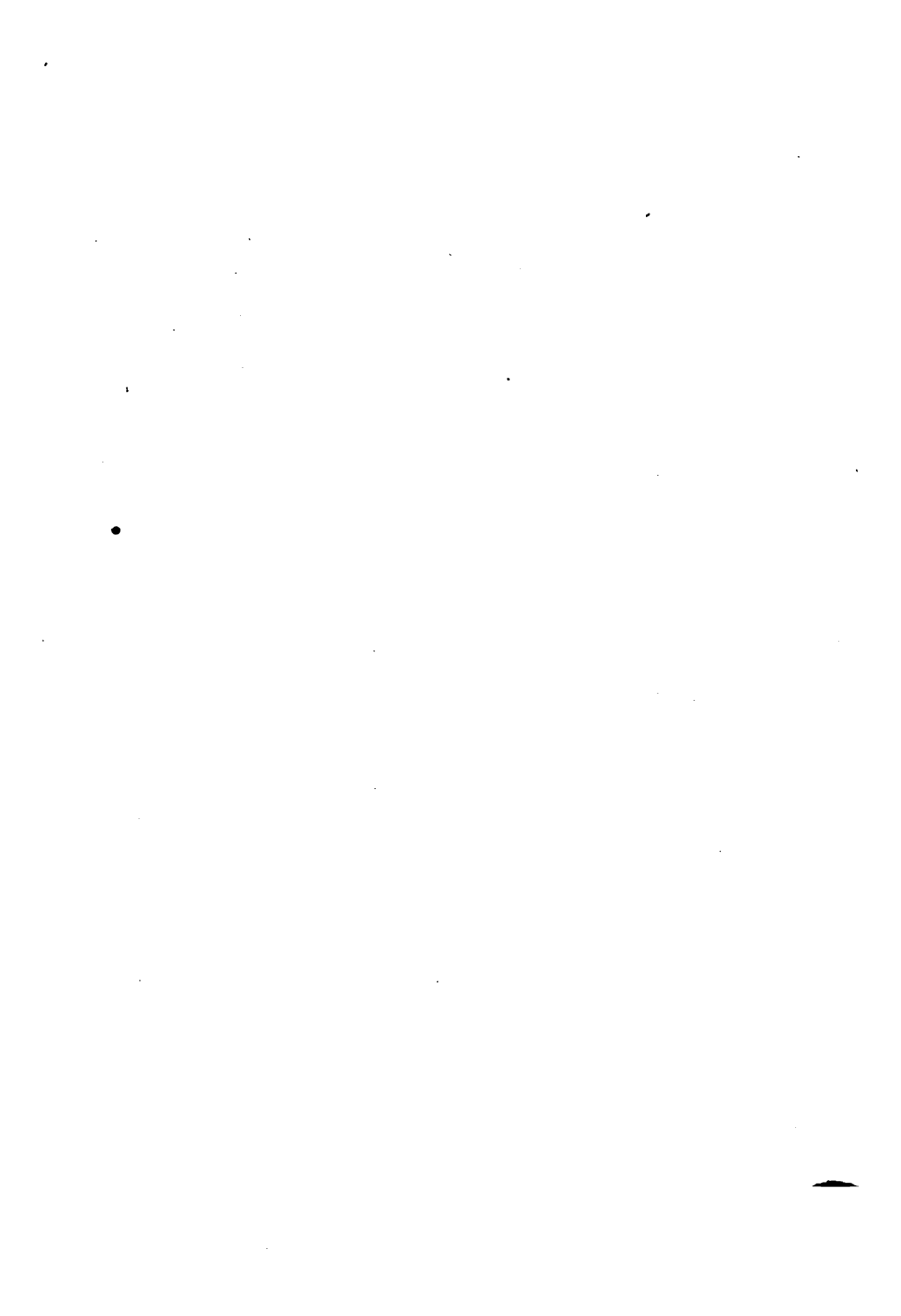
Page 71, line 9 from the bottom, read: **Navel.**

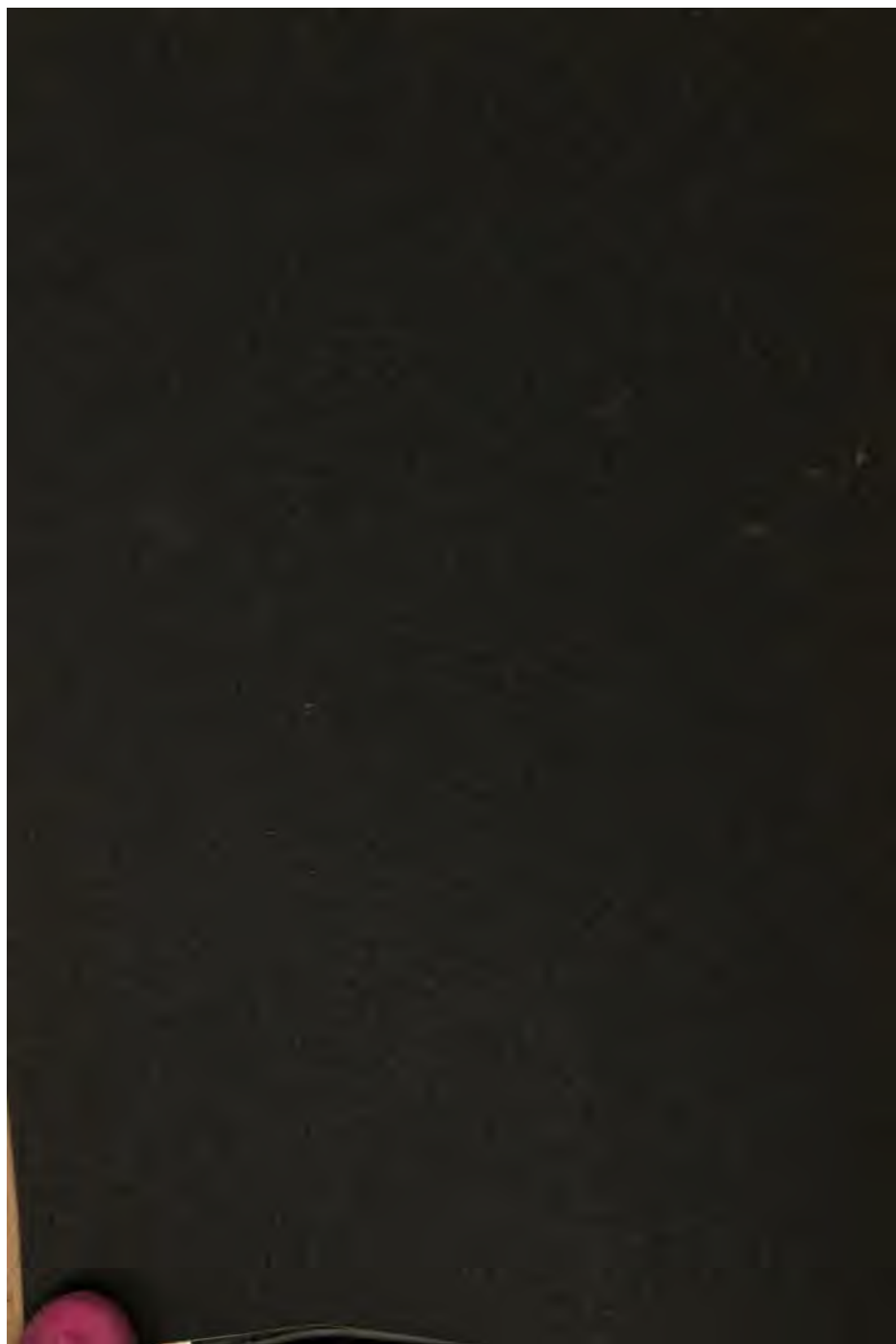
Page 73, line 11 from the top, read: capsule flat, 2-celled.

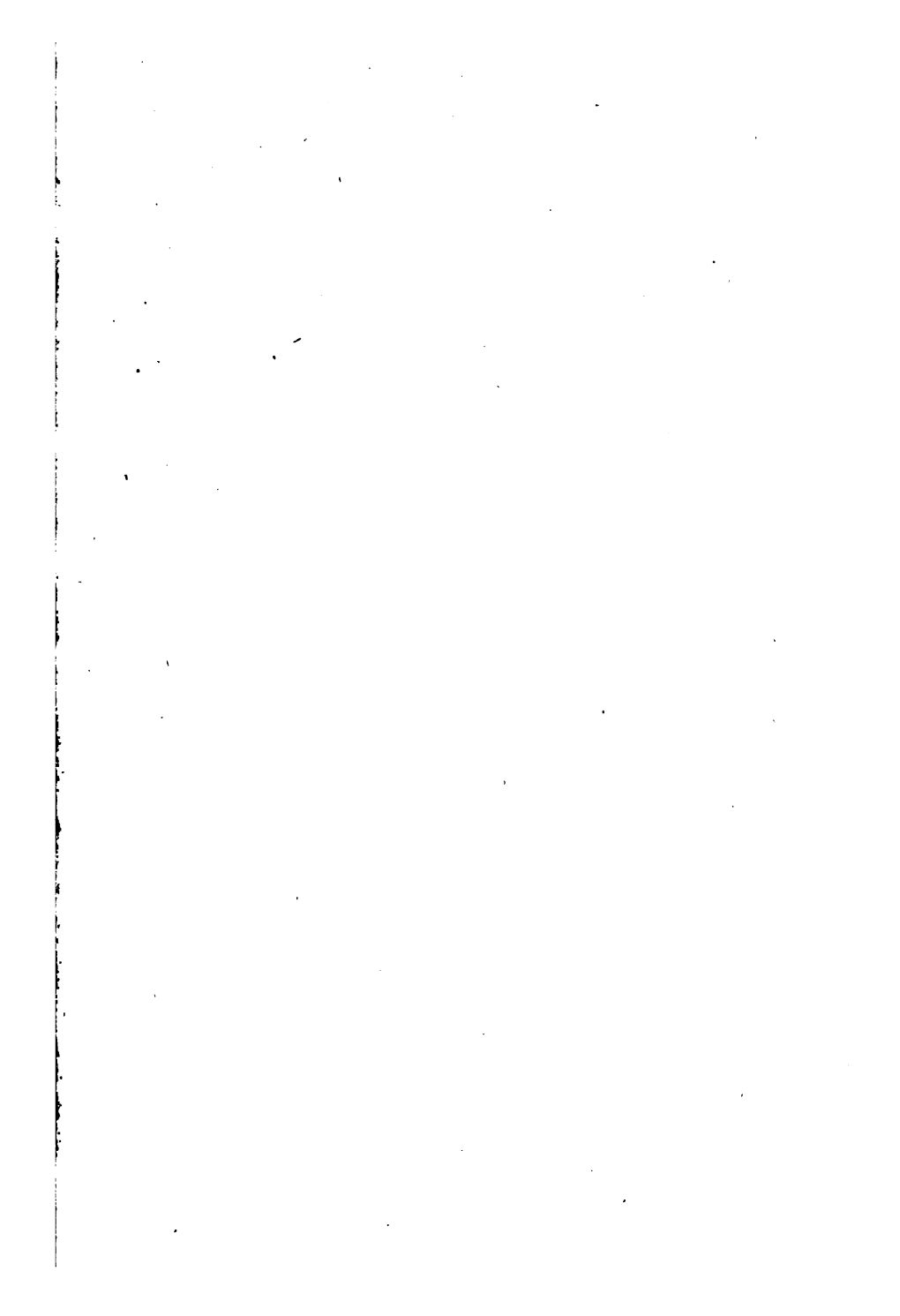
Page 86, line 23 from the bottom, read: capsule 2-5 celled

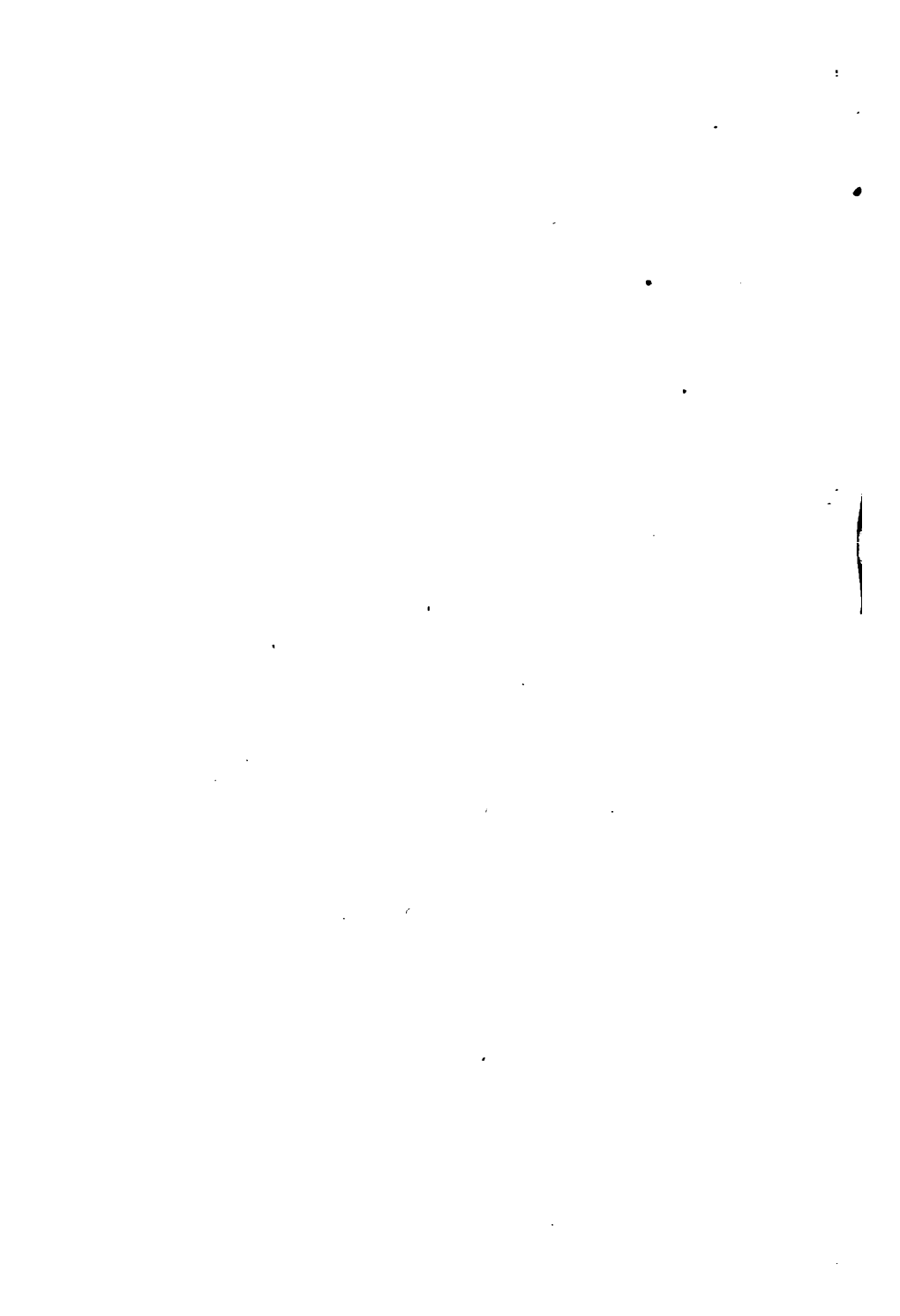
line 12 from the bottom, read: capsule blunt.

Page 88, the second of 4 should refer to 5.











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